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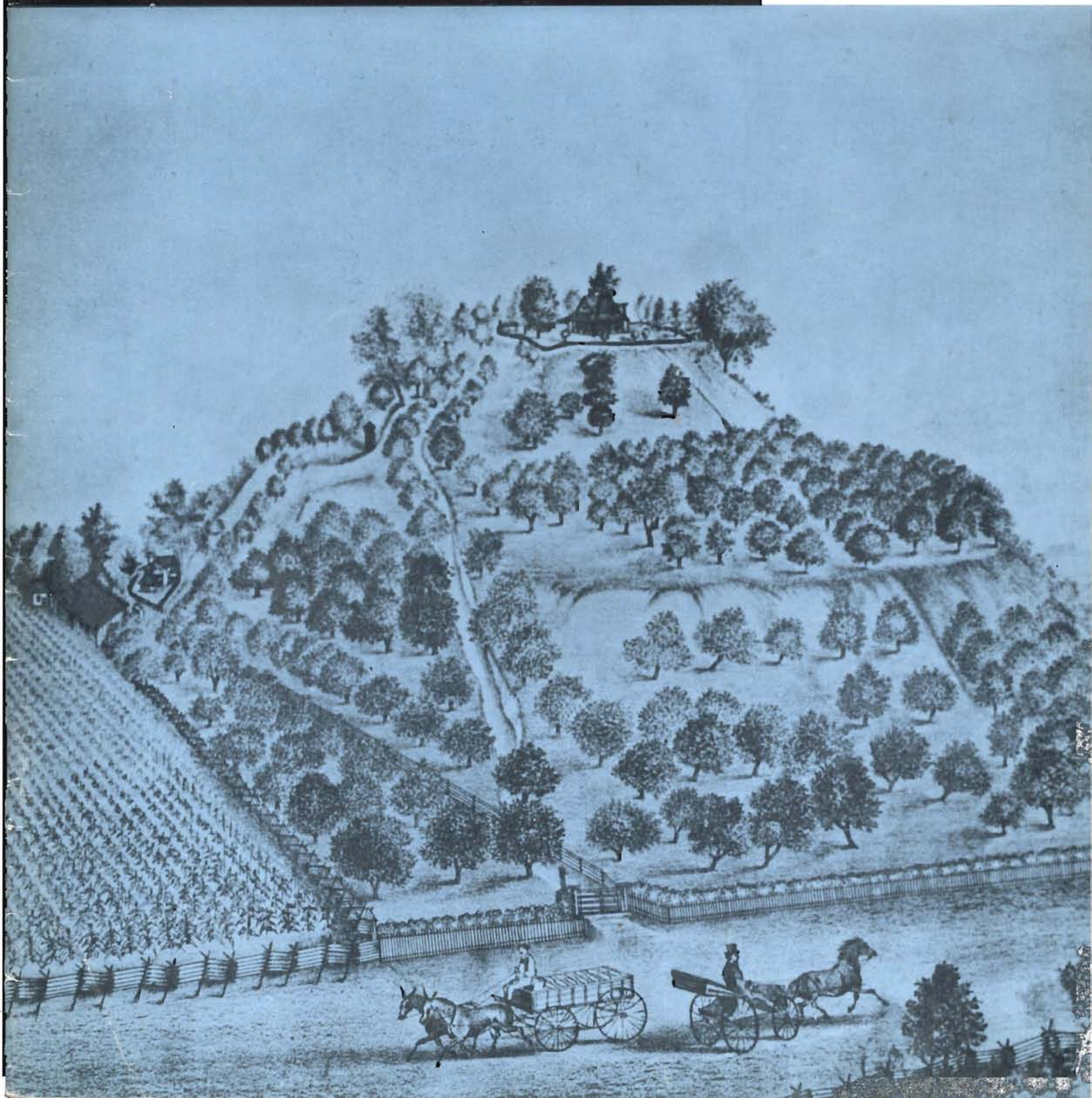

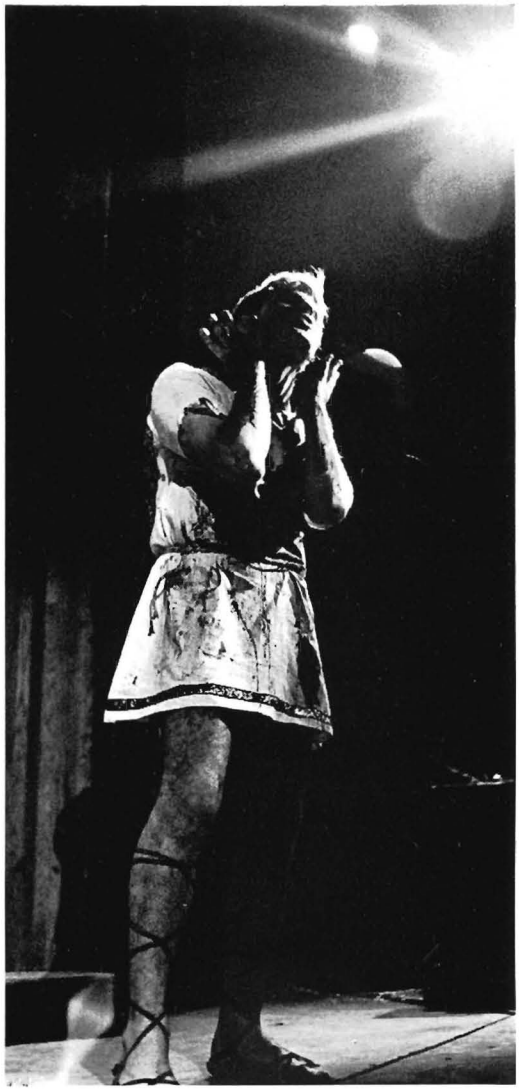

FOR A YEAR A REAWAKENING of interest in the dramatic arts has gathered momentum on the Washington University campus. Students of Forsyth Residence Halls have formed a players group; the English Department's division of drama has become a producing agent; and this spring Thyrsus, the oldest dramatic group on campus, plunged into its most ambitious venture in a decade.

Herbert E. Metz, assistant professor of speech, encouraged WU classicist William M. Sale to make a new translation of Sophocles' "Oedipus Rex." With this as a starting point, Mr. Metz conceived a production that broke with tradition. "We took a certain stand," he said. "We wanted the play to stand as a worthwhile theatrical experience, not as an historically accurate spectacle in which the play is lost to the modern audience. We wanted a powerful, stark experience."

"Oedipus Rex" played to 1,200 people in four performances, breaking Brown Hall house records. "It produced no wishy-washy audience reactions," Mr. Metz said. "It was either hated or adored."

Although originally a dramatic honorary, Thyrsus last year became a University-wide student organization cooperating with, but independent of, the academic division of drama. Its membership is open to all students and its casts and crews are recruited University-wide.

Though the impetus of this dramatic resurgence may be the University's plans for a new performing arts center, in the past few months it has been the students who have taken the lead in bringing to the campus the kind of theatre that hasn't flourished here since the 1930's.

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COVER: Nineteenth century drawing of Monks Mound, prehistoric earthwork across the river from St. Louis. Huge structure received its name from Trappist monastery that once occupied its summit. See story on Monks Mound, Page 2.

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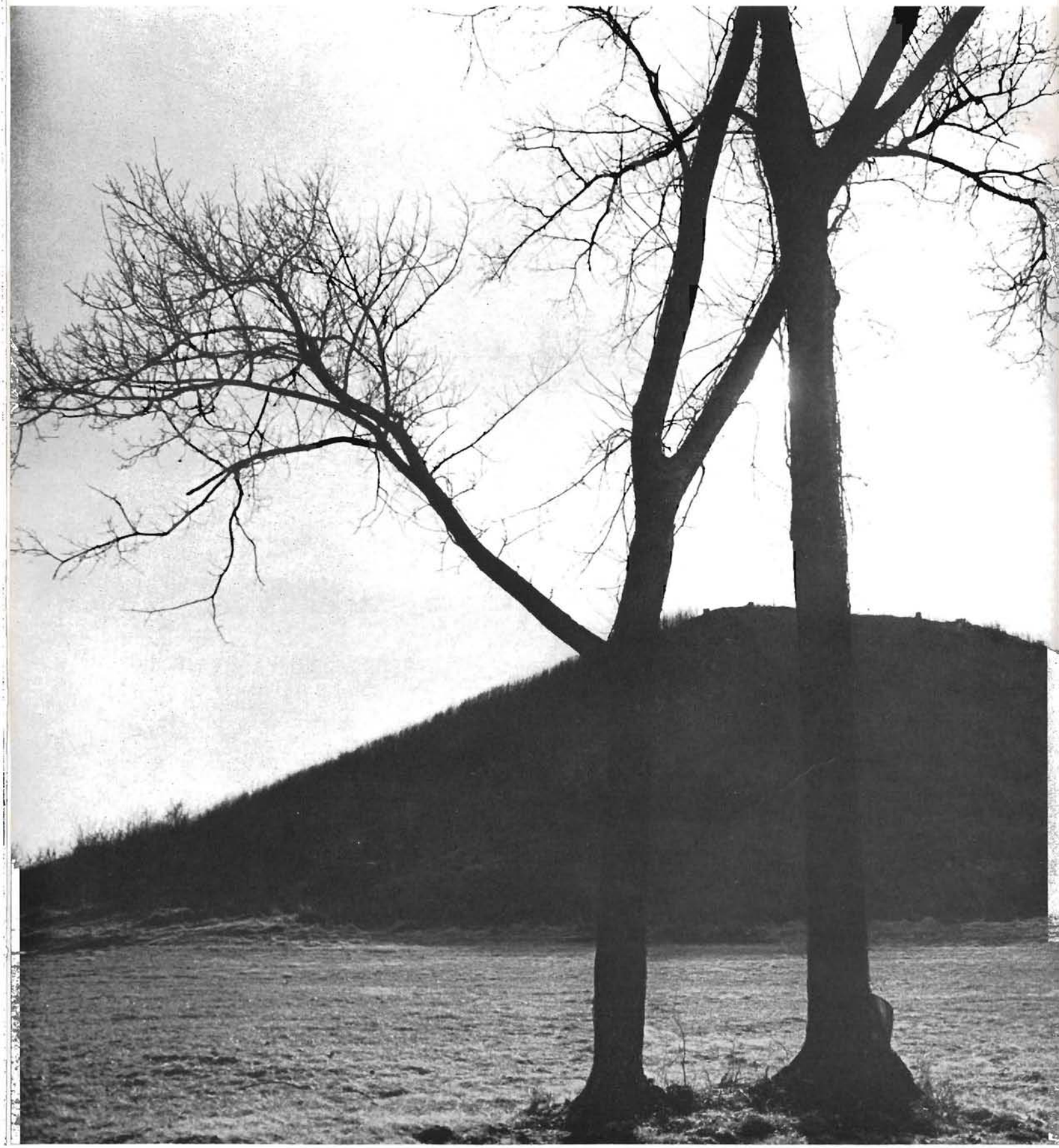


A team of Washington University archeologists is working to solve the puzzle of Monks Mound. Located across the river from St. Louis, this gigantic earthwork is the largest prehistoric structure in North America. The University scientists are using the latest tools and techniques to discover when and why the Mound was built, how long it dominated the area, and why it was finally abandoned by its builders.

The Mystery Of Monks Mound

ONE THOUSAND YEARS before the Gateway Arch was erected on the St. Louis riverfront, the St. Louis area was the site of another great ceremonial structure—the gigantic prehistoric Indian earthwork called Monks Mound. The Western Hemisphere's largest man-made prehistoric structure north of Mexico, the huge mound dominated the ancient Cahokia Indian settlement across the Mississippi from St. Louis.

Ever since the first French explorers pushed their way up the Mississippi to its confluence with the Missouri in the early eighteenth century, men have been digging in Monks Mound and in the hundreds of other, smaller mounds in the area. However, until recently, the explorations on Monks Mound have been sporadic and disorganized.

Today, for the first time, the mound is being subjected to intensive scientific investigation. A team of Washington University scientists, headed by Dr. John W. Bennett, professor of anthropology, is conducting tests and excavations in Monks Mound, employing the latest scientific techniques and tools.

Archeology is a set of special techniques designed to recover the past when documents are not available or not sufficient to provide all the answers. Archeologists work in the million-year-old remains of proto-humans, but they also helped to reconstruct Colonial Williamsburg. In prehistoric archeology, of the kind being practiced at Monks Mound, the scientist is usually working with the less than one per cent of the evidence that happened to survive the effects of time and weather.

The American Indians who inhabited the Mississippi

A core sample from Monks Mound is removed from its casing for study in the laboratory. From left: Dr. John W. Bennett, professor of anthropology; Gail Schroeder, graduate anthropology student, and Nelson Reed, research associate.

Valley between about A.D. 700 and 1500 lived in large towns and had advanced social, political, and ceremonial systems, but built in perishable wood, thatch, and mud plaster. They left behind only huge earth mounds, with traces of structures in their hard-packed interiors. They also made pottery and stone implements in abundance, and some copper and stone art objects and ornaments. The latter, however, were rare, and most of the existing specimens were looted from Indian cemeteries by nineteenth-century collectors and have since vanished into private collections.

Since there is no information on the language spoken by these Indians, the anthropologists cannot even give them their correct names. The archeologists therefore invent names, usually systematic terms indicating cultural groups or classifications. The Indians who built the mounds at Cahokia are called the "Monks Mound Aspect of the Middle Mississippi Pattern." The "Pattern" refers to the whole culture of the Southeastern United States during the same period, and the "Aspect" is the local expression of that culture.

The relationships between various aspects and even finer divisions of culture are the subject of constant refinement and revision among archeologists in North America, and all available techniques have been brought to bear on the problem: computer statistics, pottery analysis, radiocarbon dating, anatomical studies of skeletons and bones, and various forms of excavation.

The Cahokia Mounds State Park, across the river from St. Louis, covers the central portion of a large "temple town," built by the Mississippi Indians on this site near the confluence of two great rivers. It was surrounded by many satellite towns and villages on both sides of the river and included at least two hundred other mounds in the general area of Monks Mound. The great mound itself stands about one hundred feet high and measures one thousand feet long by seven hundred feet wide—even in its present eroded condition.

The Mexican element in Mississippi culture, marked by the pyramidal shape of the mounds and their use as sub-structures for temples and public buildings, is a puzzling feature for the archeologists. While they are certain of influences from pre-Columbian Mexico, they have never found an authentic Mexican object in any of the Mississippi culture mounds or cemeteries. The Mexican influence is demonstrated by certain shapes and colors of pottery and etched drawings on shell and stone plaques, showing feathered warriors and skulls in the Mexican model. The "long-nosed god" of the Aztecs may be echoed

in the deity shown on copper earplugs found in a Cahokia culture mound in St. Louis.

The people of the great Cahokia settlement had trading relations with other Indians all over what is now the central and southern states: copper from Lake Superior, shells from the Gulf of Mexico, stones for implements from just about everywhere in North America. Cahokia was also a great craft industry center. Recent excavations in the habitation zones indicate that the production of specialized objects was confined to certain locations. If the temple priests ran Cahokia, they were also busy entrepreneurs, managing the river trade and commerce.

Most archeologists also are willing to equate the archeological sites in the area of St. Louis, southern Missouri and Illinois, and some adjacent regions with a political-military confederacy, headquartered at the Cahokia site itself. Throughout the Southeast, this pattern is repeated: one or two large temple towns seem to be the approximate center of a geographical region which contains numbers of smaller centers with a similar or identical culture. Boundaries between these cultural areas are fairly clear. In the later stages of Cahokia, a large rival "confederacy," a primitive state, developed along the Ohio River. Centered on two large towns in Massac County, Illinois, and Evansville, Indiana (the Kincaid and Angel sites), this "aspect" fanned south to include a large region in Kentucky. The Cahokians probably dominated the north. In historic times, the Creek Indians in the Southeast had a system of political confederacies based on towns, and there is no doubt that they were among the immediate heirs of the prehistoric Mississippi culture people.

In its heyday, Cahokia must have been a spectacular sight. We can get an idea of its barbaric splendor from the remaining artifacts and from the huge size of the mounds. Fortunately, the chroniclers of the Spanish explorer De Soto left a description of a few of the last Mississippi sites in the Southeast. They told of vivid feather robes and wood and copper headdresses, of great processions and banners, of eternal fires before the temples. Some of the excavations near Monks Mound have uncovered huge circles of great posts that were possibly primitive astronomical observatories used to mark the path of the sun through the heavens for the Indians' calendar.

Scientific archeology began at Cahokia some fifty years ago, with excavations directed by Warren Moorehead of Harvard's Peabody Museum. There has been small scale and rather sporadic digging ever since, with the most important excavations being conducted a few years ago when an interstate highway was routed through the site. During the 1930's, many large Mississippi culture sites were excavated by WPA crews, but Cahokia missed this treatment because there was no local institution interested in such research or willing to take the responsibility.

In recent years, a new cross-institutional organization, the Illinois Archeological Survey, has been coordinating work at the site and administering the highway salvage excavations. Cahokia is such a large site that thorough excavation would require extremely large sums of money.

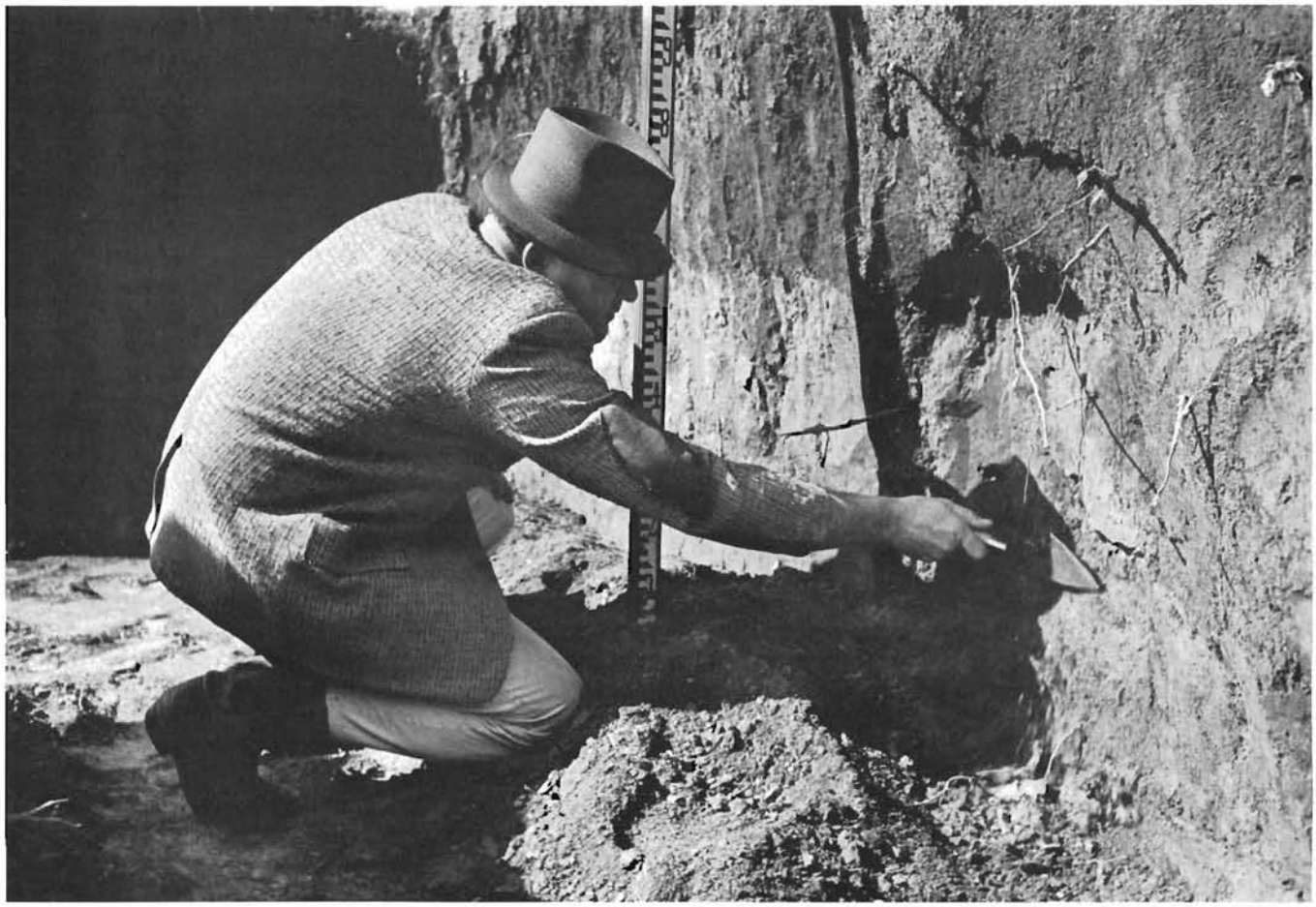
Washington University's current Monks Mound project is a modest one financially, but it is hoped that it will provide answers to important questions through the use of new techniques. Chief among these is the core-drilling method. By extracting a series of earth cores from different locations in the mound, archeologists can obtain profile columns of the interior structure and can gain some knowledge of how the mound was built.

MOST OF THE BIG MISSISSIPPI "temple mounds" grew by accretion. Successive generations of Indians added sections to the mound, tearing down and then rebuilding the structures on mound terraces. The interior of the mounds consists of layers of earth with floors and the remains of buildings on the top of each construction stage. Many Mexican and Middle-American Indians built their temple mounds the same way, but they faced them with stone. Their purpose was to achieve height—to raise the temple and public buildings high above the dwellings of the common man. As the society grew in population and power, the pyramids grew higher. In accordance with religious practices, some of the temple mounds required rebuilding at certain definite calendar intervals.

The excavation of Monks Mound was organized in 1964 by Nelson Reed, with James Porter as archeologist in charge. Begun under the control of the Illinois Archeological Survey, the project was taken over in its second year by Washington University. In addition to its scientific objectives, the project focused attention on Cahokia as part of a campaign to save the last undisturbed part of the site which lay outside the state park. That goal was achieved in the spring of 1965 when the state legislature voted $1,500,000 to triple the size of the park.

Reed, a research associate and graduate of Washington University who has done field work and research in Central America, is particularly active in a study of the early accounts of the Cahokia site. The scientists hope to use the early descriptions and maps to determine the shape of certain parts of the mound before they suffered extensive damage in the late nineteenth century. Reed also believes that he may have found reports of Indian legends about the people who lived at the site in its final stages.

The Washington University archeological team at work atop Monks Mound, gigantic prehistoric earthwork across the river from St. Louis. The team is taking core samples at various levels of the enormous mound.



James Porter, archeologist in charge at the site, does some first-hand exploration near the summit of the Mound. Porter is an authority on the use of microscopic thin-section analyses of pottery fragments.

Porter, a research associate in anthropology at the University, has excavated in Mexico and the Southwest and is a pioneer in the use of microscopic thin-section analyses of potsherds, or fragments of pottery. He is in charge of the Ramey field house, the headquarters of the University project at the Cahokia site. This is an old farmhouse originally built by a family who owned Monks Mound as part of its farm and who played a major role in preserving the site from extinction.

Porter presides over three floors of activities, which include the washing and labeling of all pottery and artifacts, the study of maps and plans of the excavations, and the preparation of reports. He has also been supervising a series of excavations on the topmost terrace of the mound in order to determine the nature of the final temple structure. Thus far, he has determined that an extremely large structure crowned the mound just before its abandonment, but that it must have been carefully dismantled, the wall trenches and postholes filled in, and the whole covered with a thick layer of earth.

So far, no clue has been found to indicate why the Indians pulled down the temple and abandoned the mound. There is no evidence of burning or other depredation. Bennett has theorized that prolonged drought in the Mississippi Valley around A.D. 1500 might have made it difficult to maintain such a large population and that the trading empire built by the Indians simply fell to pieces.

The core-drilling technique employs a commercial drilling rig and produces cores of earth three inches in diameter and two feet in length from various depths within the mound. As the cores are removed, they are packed in tubes and transported to the laboratory at McMillan Hall on the main campus. There they are charted and studied by Bennett and Reed and their assistant, Gail Schroeder. Each core is carefully unwrapped, shaved to produce a smooth image, and then drawn on graph paper to produce the profile of the interior mound structures.

Work thus far on two profiles produced by corings taken from the top two terraces of the mound indicates that the Indians built the main body of the mound in two major stages, each about thirty feet thick; and two accretional stages, each having many thin layers of superimposed floors. One of these separates the two major stages; the second is on top. The two major stages were made by scooping up black swamp soil from the neighboring creeks and low places, while the accretional stages were produced with brown soil and sand layers from drier areas. The black soil of the major stages has abundant vegetational material, and experiments are being made with this material at the University of Michigan to determine its datability by radiocarbon methods. A date is already available for the topmost section of the last accretional stage: A.D. 1180. This can be taken as an approximate date of the final utilization of Monks Mound for ceremonial purposes. However, it is known that Indians lived at the site much later. It is possible that the intensive ceremonial-political complex had fallen into ruins while Indian villages still occupied the area, possibly as late as A.D. 1500.

The cores also provide ample raw material for other types of research. Dr. Walter H. Lewis of the University's Botany Department and the Missouri Botanical Garden is working on extracting pollen samples from the cores. To date, he has found it difficult to locate pollen grains and believes that most of the pollen in the mound may have been digested by fungus spores, which lived on for a considerable time after the mound was built. It is hoped that pollen evidence will be found, for it could chart the changes in cultivated plants from the beginning of the construction of the mound to its abandonment. Other types of biological study will be done on the cores, principally attempts to grow live specimens from the fungal spores and bacteria in the mound core—a project with primary significance for certain topics in plant evolution.

Work on the core samples is also being done by a soil specialist, Dr. Albert Schatz, a visiting professor with the University's Science Curriculum Project. Schatz is assisting Bennett and Reed in preparing descriptive conventions for the analysis of the many different kinds of soils used by the Indians to build the mound, and is helping with problems of soil chemical and color change.

Professors James Brice of the Department of Earth Sciences and Robert Mains of the School of Engineering and Applied Science are also involved in the project. Dr. Brice has been advising on geological aspects of the work and Dr. Mains has been assisting in mapping and photogrammetry work.

THE WASHINGTON UNIVERSITY TEAM is also preparing to collaborate with Dr. Melvin Fowler of Southern Illinois University at Carbondale, who is readying a major site-mapping project at Cahokia. Fowler has selected three square miles of the Cahokia settlement, centering on Monks Mound, and will photograph the area from the air, and dig test pits over the whole district in order to map the extent and nature of the prehistoric settlement. The SIU team will be quartered in Washington University's Ramey field house.

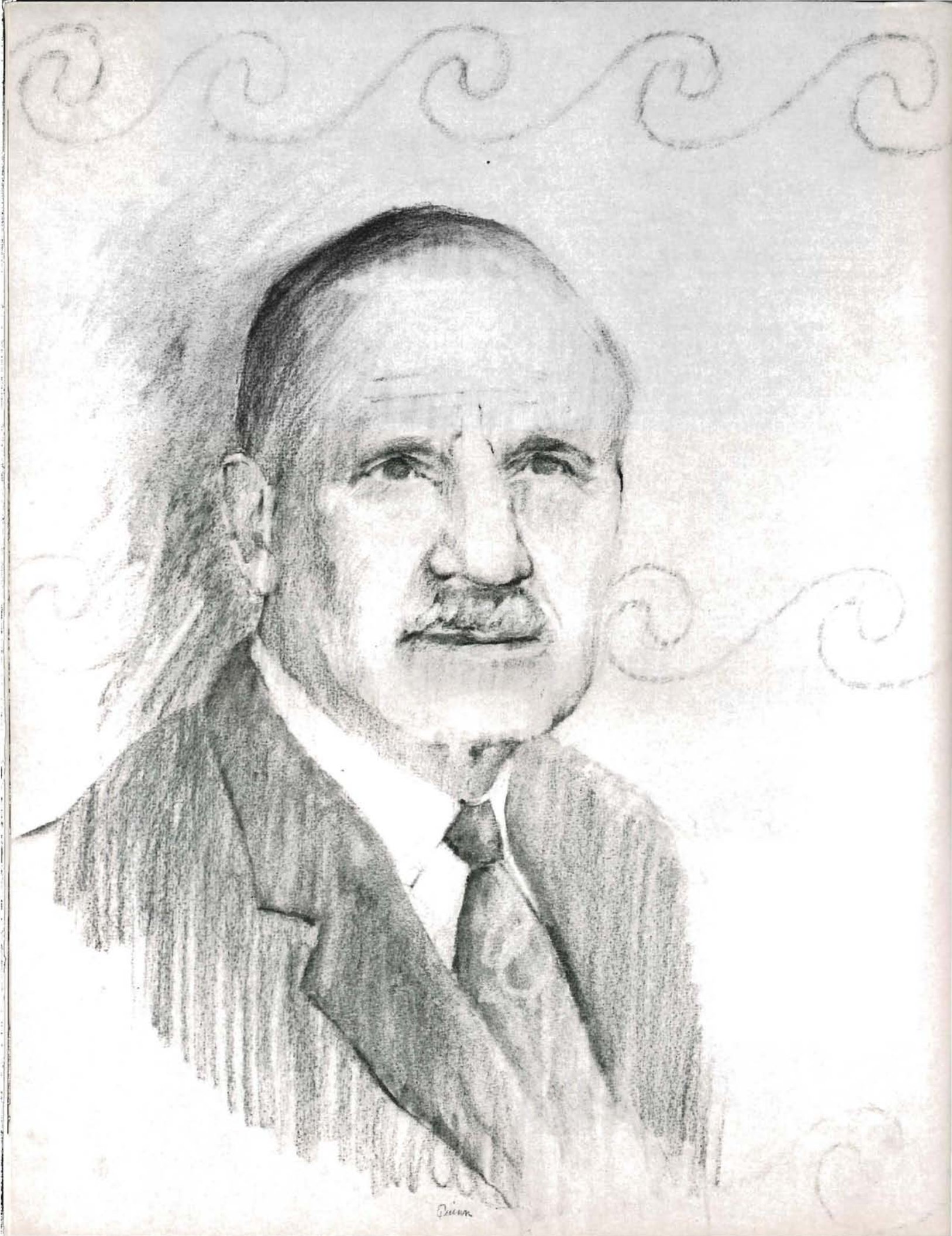
The Washington University team is concentrating on just one part of the great Cahokia site, although the whole area needs excavation.

"The Monks Mound work is a pilot project, experimenting with new methods for obtaining knowledge at low cost," Dr. Bennett states.

"It may be possible," he adds, "to dispense with the extremely expensive method of digging these huge mounds and to probe them with our coring method. With the several hundred cores we are taking from the mound, we should find potsherds and carbonized vegetal material which will permit us to date the various strata we can see in the cores."

The team's long-range interests in the site are more ambitious than work on a single mound.

"We are really concerned with the nature of Cahokia as a proto-civilization," Bennett states, "and we hope some day to gather enough data to begin to interpret how these people reached that level of culture and why they failed to go on to the urban, literate level."



A member of the Washington University faculty since 1933, Professor Mylonas has directed archaeological expeditions in Greece at Olynthus, Aghios Kosmas, Eleusis, Akropotamos, and Mycenae. His most important research has been connected with the exploration of the royal grave circle and palace at Mycenae and the excavation of the cemetery at Eleusis. For his discoveries and research, Dr. Mylonas was decorated by King Paul of Greece in 1955 and this year he received the Gold Cross of the Grand Commanders of the Order of Phoenix from King Constantine. This article on the history of Mycenae is based on the address Dr. Mylonas gave on the occasion of his recent inauguration as Rosa May Distinguished University Professor in the Humanities.

THE RISE AND FALL OF THE MYCENAEAN STATES

By GEORGE E. MYLONAS

Rosa May Distinguished University Professor in the Humanities

SELDOM IN THE HISTORY of mankind is one confronted with the paradox of having a written, intelligible account of a culture whose relics remained buried, and whose existence is doubted by the very scholars who extoll the virtues of the written word. For years, one of the earliest pieces of literature produced in the Western World, the poetry that has come down to us under the name of Homer, the Blind Bard of Ionia, was read, enjoyed, and admired. For years, the civilization mirrored in the lines of the *Iliad* and the *Odyssey* was taken to belong to the realm of fantasy and the fairy tale; a creation of the most marvelous gift given to man by the immortal gods, the gift of human imagination.

In the second book of the *Iliad,* we read, as many generations before us read, of kings and heroes, of domains and citadels, of warriors with shining armor and fabulous manly virtues, of wise advisers and cunning princes. These kings and princes lived in palaces elaborately constructed and filled with works of art. We seem to be in a fairyland when we read in the *Odyssey* the description of the palace of Alkinoos, the king of Phaeacia, or that of Menelaos, the king of Sparta.

The mantle covering the fairyland of poetry was lifted somewhat in the second half of the nineteenth century by Heinrich Schliemann. It has been removed almost entirely by the work of the international scholars which followed his great discovery at Mycenae in 1876. Over the last 50 years, our knowledge of the cultures from which were drawn the elements of epic poetry has increased immeasurably. To say that the cultures revealed by excavation correspond in all details to the setting within which the Homeric heroes moved, fought, and died will not be the truth. After all, we have to remember that epic poetry is not history, that the *Iliad* and the *Odyssey* are not descriptive *guidebooks* of the Heroic Age. As poetry they survived and as poetry they should be read and enjoyed. However, the reader should not fail to realize that their magic inspired scholars and laymen alike to delve into the remote past and to advance our knowledge beyond the lines reached by the ancient mythographers to a new horizon unknown to the Greeks of the classical era.

Almost daily the limits of this horizon are being pushed further and further back into the dawn of human consciousness, and cultures one after the other are being revealed by the magic spade of the excavators. Some of these cultures are primitive—the Stone Age, the Early

Portrait of Professor Mylonas by William F. Quinn, assistant professor of fine arts.

Bronze Age; others are wondrously advanced—the Minoan, the late Mycenaean; so advanced indeed that we are justified in maintaining that they were capable of producing the wonders pictured in the *Iliad* and the *Odyssey*.

Between epic poetry and archaeological research, we find several points of contact, few but indeed precious, because they prove that a kernel of truth underlies the poetic tales. One of these points, the focal element of the epics, is an event with which Greek history opens—the Trojan War that was fought in the closing years of the Bronze Age. Whether we choose to believe that the abduction of a most beautiful queen brought it about, or that economic and commercial reasons underlie its beginnings, or with Professor Denys Page we find its roots in the collapse of the Hittite Empire, it seems to me that in the light of the most recent discoveries at Troy, we cannot deny its historicity. One may in truth maintain that the general setting of epic poetry is an attempt to recreate life of the closing years of the Bronze Age, some aspects of which correspond to remembered facts. That age, and especially the Middle and Late Bronze periods (ca. 1900-1120 B.C.) will form the subject of our study.

AT THE OUTSET, we must admit that our knowledge of these periods is sketchy indeed; that the cultures developed during the eight centuries which these periods cover are known to us in mere outline; that important elements of the picture we are trying to depict are missing. Having admitted that much, we may now maintain that in the last fifteen years the picture has been rounded and enriched considerably, and that most important details were added to it that illumine its entire concept. Since many of these details have been contributed by expeditions manned by Washington University and financed by its good friends over the past fourteen years, it is especially appropriate to present within the walls of this University the two periods of the Bronze Age of the Greek mainland.

It is generally agreed that the first Greek-speaking Indo-Europeans established themselves on the mainland of Greece at the beginning of the Middle Bronze Age, about 1900 B.C. Their entry and their southward progress is marked by destruction of the villages and settlements they encountered on their way. The newcomers established themselves especially on the eastern half of the mainland below the Thessalian plain, their chief domain being Boiotia, Attika, and the Argolis.

The culture which the Greek-speaking Indo-Europeans brought with them was unimpressive. Their villages consisted of a few small detached houses, rectangular in shape, with one end terminating in an apsidal section and the other in an open portico. The walls were built of mud brick laid on a low foundation of rubble. Their chief product was a gray monochrome, wheel-made pottery known as Minyan ware. Of good technical quality, it has a smooth finish with an almost soapy feel.

Equally typical of their culture were their graves and burial customs. Inhumation was the only practice; cremation was unknown. The dead, in a contracted position, were placed in rectangular cist graves made of four slabs set vertically in the ground. The floor was covered with pebbles and the box-like graves were roofed over with one or two slabs. At the beginning only one person was placed in each grave, without gifts or furnishings. In this manner, the Indo-Europeans began their culture on European soil: a coarse and plain beginning without glamor. Their physical appearance has been deduced from skeletal remains and from the protome of one of their descendants cut on an amethyst bead of the late seventeenth century, B.C.

From the beginning, however, these newcomers exhibited the racial feature that characterized the Greeks of the historic era: the "sense of wonder" directly leading to inquiry, and ultimately to knowledge. As Aristotle expressed it, "Wisdom is the child of wonder."

Those rough Indo-Europeans were ready to learn. They were eager to accept, to adopt, and to develop new ideas and cultural impulses. Settled among inhabitants racially related, perhaps, to the people of the island of Crete, they were influenced by the culture they found. Sooner or later they came in contact with Crete and its wonderful Minoan civilization then experiencing its first flowering. Gradually the settlements of the newcomers increased in numbers and extent and developed into the early states of the Middle Bronze Age. Such settlement-states we find in Athens, Thebes, and Aegina, and at Eleusis and Mycenae.

Minoan and native influences are easily traced on the pottery produced in the settlements of the ensuing centuries. To the gray Minyan is added a variety known as yellow Minyan, and along with both wares, are produced vases bearing a geometric decoration painted on the face of the pot in a non-lustrous, matt color. Later, from Minoan Crete, the mainland potters learned to cover their pots with a slip on which patterns were painted in brilliant colors. When that stage was reached in the cultural development of the mainland, its people found themselves at the beginning of a new era, a new period of cultural

An engraving found in 1954, which seems originally to have been deposited as an offering in the tomb of Klytemnestra. Dating from the thirteenth century, B.C., it represents the great Mycenaean goddess riding through the ether on a mythological animal. Drawing by William Quinn.

development, commonly dated around 1600 B.C., which came to be known as the Mycenaean Age.

The horizon of the small Indo-European settlement-states on the Greek mainland was brightened and immeasurably extended at the very beginning of the Mycenaean Age. The prosperity and cultural activity of some states reached a high crest. Pre-eminent among them was the state of Mycenae, as proved by the royal graves explored by Schliemann in 1876. The wealth of objects found in those royal shaft graves and their artistic merit, contrasting sharply with the almost primitive remains of earlier times, proved definitely the great cultural development of the people of Mycenae. It also raised a number of questions that remained without answers for a long time. How did so much wealth appear so suddenly at Mycenae? Why were so many objects placed in the graves, when earlier few if any gifts were buried with the dead? Why was more than one body buried in the same grave, in a more or less extended position? Were these shaft graves really graves, or were they depositories in which in time of war were stored the valuable objects of the tholos tombs, as Sir Arthur Evans maintained in 1929?

The art exhibited by the objects found had such a strong Minoan character that Evans, influenced by his Knossocentric tendencies, projected his theory, developed into a dogma, that the area had been conquered and occupied by Cretans and that Minoan princes ruled over Mycenae and the other states.

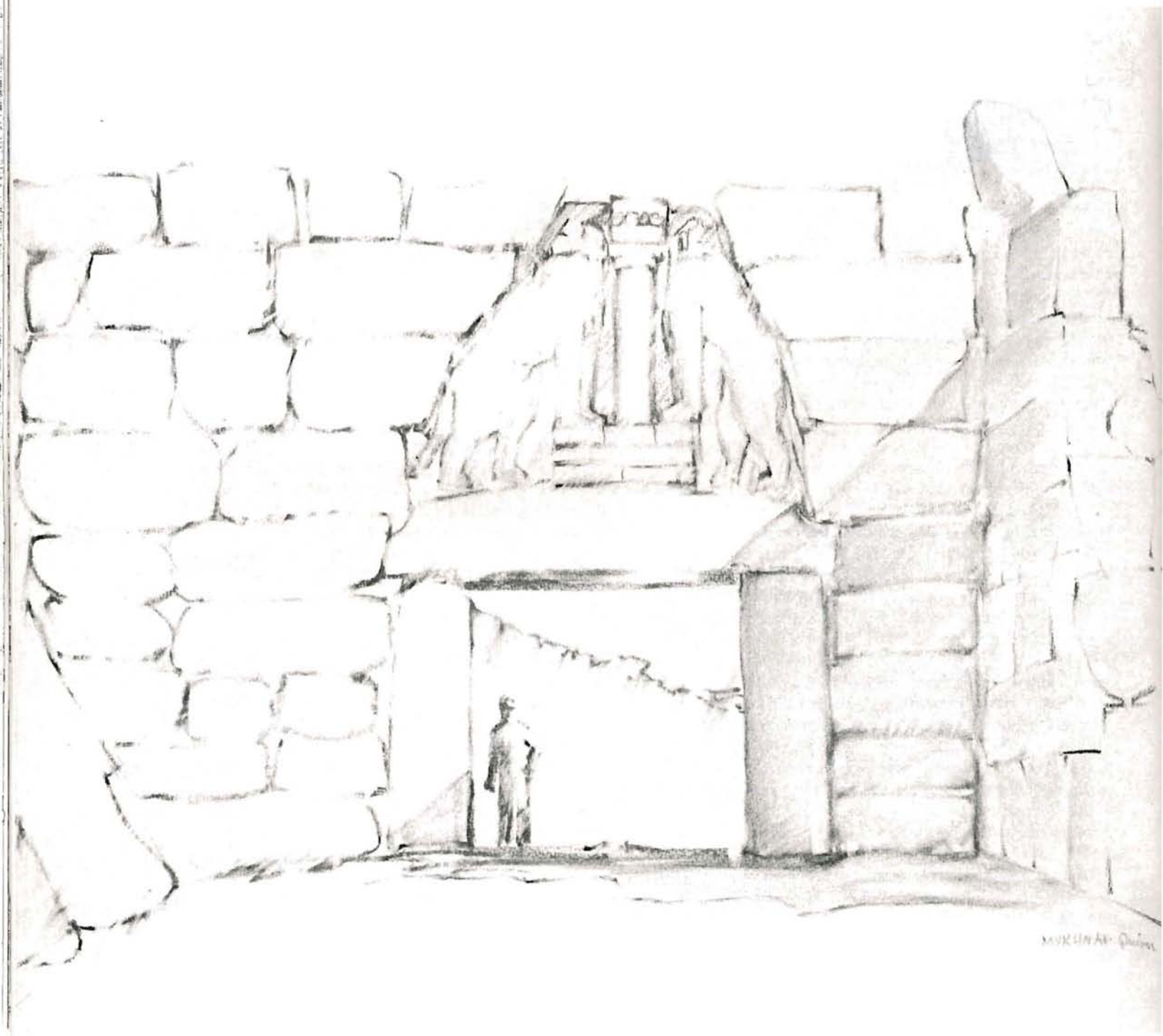
No sooner was Evans' theory proved untenable by subsequent discoveries than a new assumption was projected to take its place. It was theorized that the shaft graves and their contents were due to an influx of new people or leaders who reached the Argolid at the beginning of the Mycenaean Age. This assumption, however, creates more problems than it solves. It fails, for example, to explain how conquerors would adopt *in toto* the burial customs of the conquered. Only in the results of recent excavations can we find the definitive answers to the questions raised by Schliemann's discoveries.

Until Washington University's excavation at Eleusis, it was often assumed that the cist graves of the Middle Bronze Age remained the same throughout the period; that the burial customs exhibited by their contents remained unchanged; and that these contrasted sharply with the customs illustrated by the shaft graves. The work at Eleusis proved that both the type of the grave and its contents evolved in the course of the Middle Bronze Age, certainly under Minoan influence. The cist graves at Eleusis were gradually increased in size to contain more than one body and became family graves. The increased dimensions made it possible for the dead to be deposited in a more extended position. By the dead were laid gifts, timidly and sparingly at first, more freely later; a cup, perhaps, or a pitcher at the beginning, then larger vases and pieces of armor, and even jewelry.

The burial customs which developed in the course of the centuries gradually reached the stages exhibited by the shaft graves: the floors of the graves continued to be covered with pebbles; the bones of those buried previously were brushed unceremoniously aside to create room for a new burial; the furnishings of the earlier burials were often broken and thrown away, as no longer needed; stelai were placed over the graves and a funeral meal was held as a final graveside ritual. We may with reason maintain that the development established at Eleusis illustrates what took place in the other contemporary settlements of mainland Greece, including the settlement-state of Mycenae.

We now have additional evidence regarding the customs and the contents of the shaft graves. From 1951 to 1955, the Greek Archaeological Society, under the direction of the late John Papademetrion and myself, explored a second site, Grave Circle B, as we call it, discovered outside the walls of Mycenae. Some of the graves in Circle B are older than those found by Schliemann, others are contemporary. Some are regular cist graves of the old Middle Bronze Age type containing but a single skeleton in a contracted position and with comparatively few furnishings. Others are regular shaft graves with more skeletons in extended positions, equipped with a variety of valuable furnishings comparable to those found by Schliemann. The evidence from Grave Circle B, added to that obtained at Eleusis, proves that the shafts are royal graves, standing at the end of a gradual development whose beginnings go back to the Middle Bronze Age, to the first Greek-speaking Indo-Europeans who established themselves in Greece about 1900 B.C.

Before we leave this vital problem, we have to answer another question raised by the great number of gold objects found in the shaft graves. Since Greece possesses no gold mines of any consequence, what caused the sudden prosperity and from where was the gold obtained? The majority of specialists maintain that the gold found at Mycenae was imported from Egypt and that the sudden increase in valuable grave furnishings was due to Egyptian influence. It is now maintained that the My-



Artist William Quinn's impression of the Lion Gate at Mycenae. The imposing structure marked the entrance to the great citadel of the Mycenaean king.

cenaean warlords were employed by the Egyptians as mercenaries in their efforts to expel the Hyksos from the fatherland. For their services, the Mycenaeans were paid in gold, a metal possessed in abundance by the lords of Egypt.

While in the land of the Nile, the Mycenaeans witnessed the Egyptian burial rites and became familiar with the sumptuous furnishings entombed with the dead Pharaohs and nobles. On their return, they tried in small measure to imitate those rites and customs. So they placed in their graves valuable gifts, as many as they could afford. Egyptian influences and contacts are indicated by a number of objects found in the shaft graves: ostrich eggs, gold death masks, a nilotic scene on an inlaid ceremonial dagger, and a single instance of embalming. Thus the mystery of the shaft graves has been illumined and its riddle solved, thanks in some measure to the discoveries of Washington University.

The contents of the shaft graves stand at the beginning of a prosperous period and prove the transformation of Mycenae from a settlement-state into a city-state in control of the Argolid. Similar prosperity appears to have spread gradually over the rest of the Peloponesos. Settlements develop into city-states, dominate the valleys in which they are established, and experience an unparalleled new affluence.

IT IS POSSIBLE TO MAINTAIN that the continued prosperity and the political and cultural development of the small settlements into affluent city-states were the results of successful agricultural and pastoral activities fostered by peaceful conditions, and of the expansion of Mycenaean enterprise across the eastern basin of the Mediterranean. Sailors and merchants from the coasts of the mainland fanned out to the east and to the west, established posts and even colonies in the islands and litoral of Asia Minor and Italy, superseded Minoan establishments, and by the middle of the fifteenth century B.C., occupied and became the lords of Knossos, the capital of the Minoan domain.

The second half of the fifteenth century and the fourteenth century B.C. form the Golden Age of the Mycenaean world. Abroad, we find Mycenaeans trading from Syria and Palestine to Egypt, to Asia Minor, to Sicily, and the islands to the north. They take their products—objects of art, olive oil, wine, pottery—to the then known parts of the Mediterranean world, and in return they bring home ivory and precious stones from Syria, gold from Egypt, spices from the Semitic Near East, tin from Spain and England, amber from the Baltic Sea. We find their dagger badge engraved on a pillar of the outer circle of the megalithic monument at Stonehenge in southern England.

At home they build magnificent tombs: chambers carved in the rock for the people, tholos tombs for their rulers. As structures, these tholos tombs reach the climax of their development in the thirteenth century B.C. and in the construction of the so-called Treasury of Atreus and the Tomb of Klytemnestra at Mycenae, and the Treasury of Minyas at Orchomenos in Boiotia. They built formidable, almost impregnable citadels crowned by great palaces. One has to see the Cyclopean walls of Mycenae and Tiryns to appreciate the immensity of the work their construction required.

On the summit, some 920 feet above sea level, the great palace once stood as the living emblem of the greatest Mycenaean king. Even in its present ruinous condition, it is awe-inspiring. The walls were covered with frescoes and its rooms filled with works of art in gold and silver and bronze, and in ivory, glass, and terracotta. Our excavations at Mycenae last summer proved that the palace on top of its citadel had a length of 525 feet and a width of 280 feet.

We find the same situation in other Mycenaean sites. At sandy Pylos, the reputed capital of wise Nestor, Professor Carl W. Blegen revealed the remains of a great palace with its central unit or Megaron, with its bathroom intact, and with its wall frescoes in fragments, but still brilliant. In Thebes, where stood the Palace of Kadmos, Greek archeologists three years ago found among the ruins of its treasury room thirty-seven Mesopotamian cylinders of varied dates, from the third to the close of the second millennium, proving that the king was also a collector of foreign works of art.

The thirteenth century B.C. is characterized by the same intense commercial activity and prosperity. The renown of the Mycenaeans, who were then known as the Achaeans, reached the mighty potentates of the Hittite Empire who, on one occasion, addressed their ruler as "Brother."

We can get a glimpse of the political and social systems existing in the Mycenaean world of the thirteenth century B.C. from a number of clay tablets found by Blegen at Pylos and by Evans at Knossos. They are inscribed in a pre-Greek writing that has come to be known as Linear B Script. Thanks to the monumental achievement of the late Michael Ventris, we can now read some of these tablets and learn that their language is Greek, and that

the supreme ruler of the Mycenaean city-state was called the *wanax*. He had under him many dignitaries, whom he appointed to office to help him administer the state. Chief of these was the *lavagetas,* probably the commander of the army which, like the navy, had an officer cadre. The *wanax* owned lands, but the nobles, the community, and the shrines also possessed land which was hired out to tenants. People were divided into classes and into trade guilds and slavery was in existence. Priests and priestesses were active and wealthy and the shrines were filled with offerings. The people over whom the *wanax* ruled were farmers, shepherds, soldiers, sailors, warlords, and astute merchants.

Until recently, it was believed that a marked change in the life of the Mycenaean world took place in the thirteenth century, when prosperity gave way to evil days. Our work at Mycenae proved this notion false and showed that prosperous conditions endured until the very end of the century. In its closing years, the expedition against Troy was undertaken. The remains we uncovered proved that in those years Mycenae was pre-eminent among the mainland states. That pre-eminence was signaled long ago by Thucydides when he wrote that "because Agamemnon surpassed in power the princes of his time, he was able to assemble the fleet and lead the Achaeans, and not so much because Helen's suitors whom he led were bound by oath to Tyndareus." The Trojan War took place at the very end of the thirteenth century and the city of Priam was sacked around 1200-1190 B.C.

The turn of the century proved fateful not only to Troy but to the Mycenaean states as well. The brilliant picture these states exhibited to the end of the century changed abruptly. Destruction followed destruction, settlements at a distance from the center were abandoned, a good many of the inhabitants emigrated to distant areas and islands. Eloquent evidence of destruction at Mycenae was brought to light in 1964 and 1965. Within the mighty walls we found the remnants of burned buildings, crushed pots of clay and lead, and abandoned granaries. Beyond the citadel the houses of the citizens were destroyed by fire and some of their belongings were found in amorphous piles on their floors. The palace on the hill was then burned. About 1200 B.C., the palace of Nestor at Pylos was destroyed and its site abandoned. Sometime before that date, perhaps around 1220 B.C., the palace of Kadmos was burned and its site abandoned. The pressing problem which archaeologists and historians are trying to solve and the one that forms the most important subject for research in Greek archaeology today is: What brought about this widespread destruction attested to by excavation? What brought about the depopulation of certain areas, especially that of Mycenae? What started the decline that led gradually to the final catastrophe?

Some scholars attribute these disasters to the Dorians and to what came to be known as the Dorian invasion, the "Descent of the Herakleidai" of the ancients. Others maintain that northern people, now called the "Illyrian migration," wandered over Greece in their search for land to establish themselves, destroyed the Mycenaean states, and then left for other lands. Neither invasion can be brought into accord with the archaeological evidence. We still have to find the real cause, indicated by information provided by each locality.

THE EXCAVATIONS CONDUCTED at Mycenae prove that the destructions which occurred in that city-state and its dependencies shortly after 1200 B.C. can be explained only in the light of the well remembered legends of that state; legends transmitted from generation to generation: the quarrel between Atreus and Thyestes, the murder of Agamemnon on his return from Troy, the killing of Aigisthos and Klytemnestra by Orestes. Severe destruction both within and without the citadel of Mycenae took place shortly after 1200 B.C. It was then, according to the legends, that Agamemnon was murdered.

At the time Agamemnon was a hero, the commander-in-chief of a victorious army, of which at least a contingent returned home, bringing with them the loot of a successful, though long campaign. Only eight years later, Aigisthos and Klytemnestra were killed. They were then the rulers of the state, presumably with a host of friends and supporters. If they had had no adequate support to begin with, they would not have dared to attempt the murder of the returning hero, and retinues and friends increase, at least for a time, for those in authority. Is it possible to believe that these violent deeds could have been perpetrated against people in possession of power and supporters without disturbance, conflict, and destruction?

The discord and killings within the royal family must have caused an internal upheaval, the creation of quarreling factions. People and officials throughout the domain must have taken sides, bringing upon themselves the revenge of the opposing faction. This upheaval, of necessity, weakened the political system centered in the *wanax,* made necessary the use of force to impose the will of the one faction or the other that emerged as

temporary victor in a continual contest, and broke down order and allegiance in the domain. Such conditions bring about the destruction of which we have proof, the abandonment of outlying districts, the desire to emigrate to other lands where people can live in peace, and the consequent depopulation of the domain.

We find that the citadels were not abandoned after the widespread destruction of the closing years of the thirteenth and the opening years of the twelfth century, B.C. We do not find settled in the territories new tribes, possible invaders who established themselves over a conquered territory. The same people continued to live in their ancestral land. The great citadels of Mycenae and Tiryns, unconquered, still raised their defiant silhouettes against the Greek sky, and behind their Cyclopean walls people continued to live and produce. As a matter of fact, at Mycenae an attempt at recovery was made. Buildings were erected in the citadel and the palace was repaired. Good pottery was produced and even a new type, known as close style, was developed. But the recovery did not seem to gain the momentum needed, and as time passed the art of the people declined and finally came to an end. The Mycenaeans continued to bury their dead in the ancestral fashion, but they no longer built tholos tombs, and their chamber tombs were poor, small, and ill equipped.

Poverty apparently established itself in the land where wealth was once general. The events of the twelfth century can be explained only if we assume that conditions in the territory of Mycenae, disrupted by internal dissention and struggles for power, deteriorated further under the progressive pressure of enemy action. I maintain that this pressure was provided by the bands of the Dorians, that now in the course of the twelfth century, B.C. started their southward movement.

There was a time when historians believed that the Dorians advanced southward in a mighty army, conquering and destroying. Now it is maintained that the Dorians moved southward in small bands and that their movement spread over a number of years; that by sudden incursions they kept devastating the territory; that these periodic incursions and infiltrations did not allow the Mycenaeans to recover from their original setback; that they forced the people from their ancestral lands. The *wanax* of the mighty citadel, after the breakdown of his prestige brought about by the feuding within the royal family, was no longer able to protect the people in the country. The menace forced these people off the land, which was one of the sources of their wealth. It broke down their commercial activities, since their ships now had the new task of carrying people to the islands of the Aegean.

Gradually, under constant hostile pressure, the wealth and power of Mycenae waned and moved toward its end. That end came when the formidable citadels of Mycenae and Tiryns were stormed, or perhaps as I believe, were captured through treachery and were destroyed when the palaces and other buildings were burned for the last time. That time they were destined to remain in calcined ruins never to rise again. Mycenae's role of pre-eminence ended in this final catastrophe and other centers, Argos, Sparta, and Corinth, assumed its role of leadership. Our latest investigations indicate that the final finish of the drama came around 1120 B.C.

PEOPLE WHO CONQUER AND establish themselves in a territory bring with them their own culture, a sample of which is apt to survive. Over the ruins of the houses of the great state lying in ashes we found a few graves of a type unknown to Mycenae, that the conquerors must have introduced: rectangular pits, containing but one body and few furnishings, the most common of which are long pins and fibulas made of iron. The final destroyers of the Mycenaean world were using iron for their tools, weapons, and objects of adornment. They introduced iron into Greece, thus bringing to an end the Bronze Age of that country. They can be no other than the Dorians, who were finally successful in destroying the Mycenaean world around 1120 B.C. because the chief state of that world was broken up by internal dissension and strife.

The elation a scholar feels when he traces the beginnings and the development of a culture to its climax gives way to a sad mood when, following its decline step by step, he finally points to the inexorable end. All things created by men, great or small, though leaving footprints in the path of time to be enhanced by others, seem to follow the pattern of life from its first glorious sunrise to its final brilliant sunset. But the afterglow of the Mycenaean sunset fills with cheer the heart of the scholar by reminding him that from the ashes of the Heroic Age rose, like the legendary Phoenix, another culture brilliant and eternal: the classical civilization of Perikles and Socrates, whose roots are deeply planted in the Mycenaean achievement, whose glow is still lingering on the peaks of Olympos, whose future lies in its merit, in its ever-present contribution to human destiny, and in the foundations it provided for our Western Civilization.

On the following pages are brief glimpses of the lives and works of three alumnae of Washington University's School of Fine Arts who have reached the upper levels of the New York fashion world in the few years since they left the campus. Each of the three is the chief designer for a leading national firm and each has created a style of her own.

Alumna Jeannemarie Volk, leading designer of sportswear, relaxes in her Greenwich Village apartment with her daughter Gabrielle. Jeannemarie and her husband, architect Andrew S. Blackman, collaborated on remodeling and decorating their unusual two-story Village apartment.

1

"designing women"

EIGHT YEARS AGO, Jeannemarie Volk arrived in New York with a major in fashion design and 48 hats. Born in Atlantic City, she had come to the University on a scholarship. Jeannemarie's father had been an art director and magazine illustrator and she had grown up interested in drawing and design and in making her own clothes.

Jeannemarie first came to New York after winning the opportunity to work as a guest editor at Mademoiselle Magazine. Fascinated by the glimpse of New York's fashion world her magazine job gave her, she returned, 48 hats and all, and wrangled a job as a designer.

She has been with Crazy Horse, one of the nation's leading sportswear firms, since it was established in 1963. Her original ideas and exciting innovations have influenced the wearing habits of a good portion of the young population of America. Among her most original creations were the pop art and op art designs Life Magazine featured in a recent issue.

As one of the leading young designers in New York, Jeannemarie has done much to help other young people in the field. She has lectured on dress design on television and has helped on career programs for designers.

"The most important training an aspiring fashion designer can receive," Jeannemarie says, "is a solid background in illustration and in the use of color in design."

Photographs by HERB WEITMAN

Models display two of Jeannemarie Volk's creations for Crazy Horse clothes. Her stylings are worn by young people throughout the country.

Alumna Gabriel Knecht is a leading designer of clothes for little girls. Born in Germany, Gay spent two years in Berlin designing children's clothes after leaving the University. She came to New York three years ago and is now children's designer for Glen of Michigan.

"designing women" 2

GABRIEL KNECHT, BFA 1960, has made her name in the New York fashion world in the junior-junior miss field, designing clothes for the 3-6 and the 7-14 age groups.

Born in Munich, Germany, Gay grew up with a constant interest in sketching, making her own clothes, and especially, making doll clothes. At the University, she majored in fashion design, but also took general art courses. Today, she not only designs all the little girls' clothes for Glen of Michigan, but also designs and illustrates all the firm's brochures and sales literature on its little girl fashions.

After graduation from the University, Gay returned to Germany for two years, working in Munich and Berlin designing boys' clothes. Three years ago, she came to New York and began to build her reputation as one of the leading lights of "tot couture."

"All clothes must have humor," Gay commented in a recent interview in the New York Times. "I am mad about pockets, especially those with little surprises in them like a bubble pipe in a Sherlock Holmes raincoat or a bright little packet of jelly beans in the pocket of a cotton dress."

The jelly beans have become a recurring motif in Gay's work, much to the delight of her little customers. The idea of using little jelly beans of leather or plastic for buttons probably won't be repeated, however. The kids were eating them!

A young model tries out one of Gay Knecht's designs. "I always test my designs on a little girl," Gay says. "Not just for fit or to see what they look like in action, but for the youngster's own reaction to them."

Signe Stokes Baird, BFA 62, designs swimsuits and sportswear for the junior miss and teen market. A native of St. Louis, she is married to broker Jim Baird, AB 61. She is now chief designer for Dune Deck of New York.

"designing women" 3

SIGNE STOKES BAIRD began designing her own clothes when she was a five-year-old back on Waterman Avenue in St. Louis. At the University, she majored in fashion design and took many general art courses as well. After her graduation in 1962, she headed for New York with a portfolio of design ideas and a determination to become a designer.

Signe came to New York cold and managed to find a place in her profession by sheer persistence. Today, just four years later, she is recognized as one of the nation's top creators of swimsuits and sportswear for junior misses.

It's a fascinating but hectic life, Signe has discovered. You work at least a year-and-a-half ahead on everything you create, and your success hinges ultimately on the buyer—a somewhat precarious situation when your buyers are as unpredictable as Signe's teenage market.

A Signe creation begins as an idea—maybe as a sketch, perhaps as an inspiration from a swatch of fabric. No matter how inspired the creation, however, it must bear translation into actual fabric, and most important, must be suitable for efficient mass production.

"The real thrill in this business," says Signe, "is to see people actually wearing the clothes you created."

Signe studies one of her original designs on a junior miss model. She designs matching lines of sportswear to tie together in similar groups, using the same fabric or design motif.

A planning council for the College of Arts and Sciences was appointed last spring by Robert R. Palmer, Dean of the Faculty of Arts and Sciences. Consisting of seventeen members of the faculty and fifteen students, the Council has conducted meetings throughout the fall and winter, discussing problems related to advising and counseling, the curriculum, and student activities in general. Although a full report of the Council is not planned until two years of discussion have been held, the Council has already proposed major revisions in the form of a faculty program of freshman advising which will go into effect this fall. Suggestions for changes in methods of grading and proposals for experiments in curriculum planning will be submitted to the faculty for discussion during the coming year. Burton M. Wheeler, whose appointment as Dean of the College was announced this spring, will take over the chairmanship of the Council when he returns to the campus in the fall. The retiring chairman offers in the following essay his general comments on problems of college planning.

By BARRY D. KARL
Associate Professor of History

A PREFACE TO COLLEGE PLANNING

THE AMERICAN UNIVERSITY as an ivory tower collapsed during World War II. The fabled protection of academic life faded as the pressures of professionalism, reinforced by ambitious programs of government and private philanthropy, moved the outside world onto the campus. The liberal arts programs—the undergraduate colleges which once had dominated the university scene—drew back in alarm, and for a brief period sought to protect their traditional integrity by reorganizations of curricula along lines established by various programs of general education, but in vain. The tower may have been an illusion but it served. Its collapse brought everything else down with it. The fact that the rubble still clutters the academic landscape is not the result either of carelessness or inattention. Messy as it is, we like it. It provides us with the collection of decorative ruins which attach us, we like to think, to our respectable pasts.

To speak of the liberal arts as "ruins" overstates the case to be sure, but calling them "liberal arts" is just as inaccurate. Even the vocabulary with which we describe undergraduate education has changed dramatically in the past ten years. Individual social and psychic responses of the student now supersede older concerns with the humanistic dicta of general education. We spend less time than we used to looking at the education itself and compiling curriculum reforms based on great books and ideal methods. Neither ignorance nor fear seems to hamper our investigation, but rather something we share with our students: a thoroughgoing conservatism, an awareness of the multiplicity of disciplinary approaches which make the certainties required by rational formulation of curriculum too slender a security in a rapidly changing world.

Washington University's College of Arts and Sciences has responded to the demands placed upon the liberal arts degree over the past half century. Like many of America's institutions of higher education, it has helped to establish the standards of contemporary excellence reflected in reforms of undergraduate education, as well as in developments in graduate and professional training. Generally speaking, the role of the traditional American liberal arts college within a modern university complex has been a source of debate ever since professional degrees were introduced in the latter part of the nineteenth century. The pressure upon the college to subject its own aims to those of professional education has led to two problems: the dispersion of a single sense of purpose in a multiplicity of purposes and the general fading away of the old sense of social and moral function once articulated by college educators. Without the presence of the university as a constant reminder of the nature of change in fields of knowledge, the liberal arts college can maintain its own purposes, however artificial and hothouse-like they may seem to the contemporary intellect. Within the university the problem of the college is more complex. Subjected to change from without, it must itself become a center of change. That such an attitude is hardly the basis for the formulation of attachments to tradition, let alone a stable sense of purpose, becomes clearer and clearer on today's campuses.

Nonetheless, the problem goes back further than the present knowledge-explosion. The change in American higher education at the turn of the century pointed to the beginning of the debate. In many institutions the union of college and university life was from the very beginning a source of persistent discomfort and the role of graduate study a center of often bitter debate. The issue pushed Woodrow Wilson from the presidency of Princeton in 1909.

Conflict between a university and its college had always had a tendency to scatter buildings about the city, as protectors of the old guard sought to preserve the physical as well as the spiritual life of the college from invasion by laboratory scientists and other academic tradesmen. The general education rebellions of the 1930's and 40's strangely mixed antique collegiate protectionism with a

desire by a younger group to assert the fundamental primacy of the liberal arts through the essential unity of college as an educational experience. That the general education reformers ran head-on into the academic revolution of World War II may have marked them for failure; but that's a bit too easy to say. The leadership of many universities also changed. In the present-day environment, no one seems to have the time or the inclination to respond to the electric excitement of a young Robert Hutchins—presuming that a modern day university president would have the time to attempt such measures.

Until relatively recently Washington University rested placidly at the edge of educational revolution, its suburban elegance a preservation of stable educational virtue and a protection against rapid and upsetting change. It had served a major city without having to become physically overwhelmed by it, thereby enjoying many of the advantages of an urban university without suffering the more obvious defects. It had contributed to the intellectual life of the state and the nation as well, being known not only for the students it produced but for the breadth and quality of its faculty. The need for more faculty in the immediate post-World War II period was met with a carefully considered program which emphasized academic quality and foresaw the depth of the educational expansion of the next decades. An effort to establish a basic college program in the late 40's followed by too far the already outdated general education programs elsewhere and was inundated by the demands of specialization emerging as a fundamental college function. The paradox—that quality of faculty by modern academic standards has meant specialization rather than generalization—was evident.

THE FIFTIES BROUGHT further change, moving ever more rapidly as the decision to broaden the national base of the undergraduate enrollment led to the building of the "South Forty" housing facilities—and the decade of mud began at Washington University as at other schools. Finished buildings preceded dry walkways or workable air-conditioning. The sense of the perpetually unfinished and the promises to be enjoyed only by next year's class disrupted an environment which had remained relatively unchanged through half a century. The search for tradition disturbed students who found themselves with more seniority in less than four years than many on the rapidly growing faculty. These things, too, were part of a general picture of change going on throughout the country; but in the immediate scene (too often) it could take on a unique quality, with its own heroes and villains, if not its own plot.

It is difficult to establish a useful and stabilizing sense of history, let alone one of tradition, in an environment so subject to change. Washington University is in the process of becoming different from what it was, a process which implies not only a rejection of the past but a critical suspicion of the present. The quality of the past, however dignified it might be, is in danger of being forgotten and the nature of change of being dramatically over-stated. The present is subjected to persistent picking, which asks, in effect, how much is related to the rejected past and how much is really going to be any better? The problem of such an approach is twofold. In the first place, history becomes an irrelevancy, or an embarrassment. Second, the present is subjected to an examination so myopic as to make useful comparisons with the national educational pattern of change rather difficult to establish, even though these might show us that our problems are by no means unique and that we have as much chance of solving them as anyone else.

College life in the years before World War II, whether on university campuses or at smaller colleges, looks surprisingly uniform to one familiar with today's variations. Movies of the 30's and 40's depicted a general atmosphere of ivied quiet, interrupted by periodic episodes of juvenile social gaiety. The pre-war B.A. was, by and large, a terminal degree for the vast majority of college students. With the exception of a few selected professions, it was often a luxury degree as well, whose effect on the general image of American success was as yet unclear. Musical comedy and the movies confused the issue by injecting an artificial sense of triumph in the heroes of the extracurricular student show or game, which contrasted sharply with the bores of the classroom whose standards were easily avoided by anyone with talent and ingenuity. The king of the winter carnival, the social being, and the general rudiments of a leisure intellect were at least partly a reflection of the function which the degree could be presumed to have. The Depression years, too, contributed to a general sense of the deflated value of college as a necessary, or a useful, preparation for success. An aggressive and often sentimental egalitarianism, which continued into the war, sought to de-emphasize the importance of a degree at the same time that the utility of technical training was made obvious by the new demands of warfare. That the period was also a time of development, within the University itself, of the programs of graduate and professional study which would dominate the world of post-war education, points only to the lag which often confuses reality with popular view.

The G.I. Bill gave substance and support to changes which had been in process for almost fifty years, quickening them and providing opportunities for experimenting with not only the unprecedented variety of student interest and capacity, but also with a variety of age and background which strained pedagogical experience throughout the country. It was a true revolution and a rapid one, so

consuming that it failed to develop either a consciousness or a philosophy beyond the tacit assumption that college was somehow a necessary part of democratic opportunity. Whatever marks the period of the G.I. Bill left upon those who went through it were rapidly obliterated by the return to normalcy—or what seemed normal enough. Within a decade the college student population, vastly increased in numbers, was back to the familiar, predictable age group, its freshman class separated from high school by that same remembered summer, its senior class on the threshold of the same new world.

Nonetheless, the college world had changed. On university campuses, the graduate student had become a prevailing educational presence. His demands dominated the classroom. On smaller college campuses, the increasing awareness of graduate school as the next step, and of college itself as a preparatory experience, not for the seas of life, as the valedictories once had it, but for yet another educational institution, came to mark a new sense of transition in undergraduate education. The liberal arts had become part of the endless succession of preparations for the endless succession of institutions in which and through which the successful man could compete for the victories which training could achieve. The question had become—and remains—what place the liberal arts play in that process. Do the liberal arts exist any longer as a unit capable of splendid isolation for *the* four years of college life? Does their wide range and their dispersion still entitle them to the splendor and dignity of their classical name?

Those of us on university faculties who accept the responsibility for reviewing undergraduate education and the college life which gives it its shape do so at a certain, if unexpected, peril. Our personal experience offers us an uncertain guide. The classes we teach may be markedly unlike those in which we learned during the G.I. decade. We may not be able to share recollected experiences of the undergraduate dilemma in all its contemporary variety. To refer back to our own pre-college views may lead only to Jack Oakie in a freshman beanie, if anywhere. To recall our college years is to recall the wide range of maturities, of challenges, and of qualities which characterized one of higher education's most crucial and unanticipated decades. The American university was no more prepared to deal with the G.I. Bill than it had been to cope with the war which had preceded it. It is well to remember that for many of today's college faculties the line between college and graduate school includes World War II and its effects on American education.

The return to normalcy in the late 1950's should have been a shock. The receding flood left the traditional small colleges with a mixed sense of apprehension and relief. Without the presence of graduate programs to serve as persistent reminders of the vast new world of advanced study, they could return to some semblance of their classical function—the shaping of the minds and attitudes of a select group of the young—experiencing the troubled atmosphere of the university through the tremors of an increasingly transient faculty and the growing concern among the student body that they be prepared for further formal training. Even so, by comparison with the chaos of the university campus, the college response could at least pretend to a thoughtful order, however temporary that respite might be.

The university knew no postwar respite. Graduate schools, which had sprung into existence or had grown rapidly on many campuses where the B.A. had once presided in respectable dignity, now dominated the landscape. The university which failed to commit itself to expansion and exploration during the G.I. years failed not only to meet the demands of its students, but also of its faculty, not to mention the host of foundations, great and small, eager to support any semblance of creative intellect. Alumni were called upon to contribute to the transformation, thereby insuring the end of the sort of institution which had provided them with not only their degrees but also with the undergraduate experience and even the nostalgia which could be used to provoke their generosity. In time they would find themselves puzzled by their children's objections to the old school, that is, those of their children who could meet the new standards of admission.

THE RECONSTRUCTION of the liberal arts college has been underway on most university campuses for more than ten years now. It has at times even approximated a thoughtful process, but more often it has been simply an inevitable yielding to change.

What remains is, in any case, disorder—a mixture of introductory pre-professional demands, old distribution requirements, and the remnants of courses once designed to fit programs which no longer exist. Enshrined in catalogue descriptions and complex administrative regulations are the remains of a brief period when educators believed that they knew which books were the great ones, and which methods would best produce the liberally educated mind. Even those of us who seek from time to time to examine the results of the last ten years are forced to admit that the security which we can bring to our own particular fields of study cannot be extended to undergraduate education as a whole. Its purposes have changed from what they were when we were undergraduates. The concept of preparation for further specialization has replaced the older concept of preparation for a gratifyingly responsible life; and the fact that the two can be viewed as different from one another may be the biggest change of all.

Methods of reconstruction may well depend upon an assurance which no longer exists; but we move ahead in

any case, whether spurred by inner motivation or by the fact that we have finally evolved a generation of students sufficiently free of our outmoded attachments to be able to rebel against them. Discontented winters on American campuses have been growing longer of late. The confusingly long shadows are universally present, and daylight is brief even when it is bright. Unfortunately, the language of dissent is full of borrowed idioms from politics or psychology, at least so it seems to those of us who still feel some remaining sense of commitment to the traditional values of liberal education, aware though we are of the contradictions involved in the very idea of a "liberal tradition." Caught between what often seem alternatives between a universally imposed anarchy and the impossibility of returning to the past, we ponder the present, hoping to find the pieces of change which might add up to a whole we cannot yet imagine. That this is what most well meaning and intelligent people seem to have been doing for the past ten years doesn't contribute much to a general sense of hope, let alone the possibility of "real breakthrough," which dominates many imaginations.

Clear away the rubble and begin again—but with what? It is no secret that the triumph of the present generation of intellect is its ability to consider one thing at a time, carefully and with consummate technical skill. Generalists are out of fashion and the danger of relating first-rate specializations by second-rate generalizations is not very appealing. It is hard to believe that competent generalization is dead forever; but until somebody decides to take it up again it's going to be hard, and possibly even dangerous, to force the issue. The only sure thing seems to be that it's unlikely to come from our present academic institutions unless our students succeed in forcing some of us to do what intellectually we feel unable to do.

We can conduct massive restorations which will return the lost splendor to the old edifices—but will they look antiquated and outdated in today's world, not to mention being unfit to cope with today's problems? To many of us, the ideals of General Education in any of its varied forms still have a ring of fundamental truth and eternal verity; but like the era those ideals shared with the rhetoric of Winston Churchill and the accents of Franklin Roosevelt, general education is of the past and one cannot return. In any case, good education in any era ultimately depends upon what good minds are willing to teach.

Keep our ruins as they are, but straighten up the grounds, plant an occasional tree for shade and shrub for color, and train the ivy to soften the hard brick of new walls—but can the rigors of a technological world accept even so cultivated a disorder? Drab as this alternative may seem—it neither promises to preserve the past nor predicts a genuinely useful revolution—it does describe the best of what seems to be going on these days. And it may offer a far more imaginative set of possibilities than one might suppose, despite its failure to package the best of contemporary intellect as neatly and as transparently as the current demands require.

Many of us choose this course with a great deal of uncertainty and, if we admit it, little pride in the efficacy of the liberal intelligence. We are accepting the first real criticism we have felt in our generation, not from one another, because we have learned to handle that, but from the students who request involvement in the formulation of our plans. We must accept it not because it is their "right" or "due," though it might well be, but because we need the help. There is a gap which must be acknowledged, even though it can be neither eradicated nor entirely explained. For many of us who teach and plan, the present day college student's search for a liberal education bears no resemblance to any experience we can recall. Nonetheless, he shares our ambitions and models his own accordingly. If the rush of time in turn provides him with students who fail to fit the pattern we have evolved, then that will be a problem for him to face as we must face it now. Such discomfort seems to be a characteristic of the history of our times. We must in any event let him know what we are, so that he can make useful choices for himself. By the same token, we must find some understanding of the students we teach, which will enable us to formulate plans of education which accommodate the reality of their need to learn and ours to teach.

THE PLANNING COUNCIL OF Washington University's College of Arts and Sciences has been conducting both closed and open meetings throughout the year. Composed of faculty and students, the Council has sought to adopt a role midway between an organizer of gripe sessions and an activist reform agency. Neither extreme has been easy to avoid. The gripes are as informative as they are real; but they are by no means universal. And the answers proposed can be as conflicting and as contradictory as the concerns which give rise to them. Grades, for example, are a source of pressure to all; but to some they are a reward which means satisfaction not only of the demands of the ego but also of professional futures and other practical ambitions. Nonetheless, the rigid demands of grades can be modified and the pressures reduced.

The Council's faculty advising program will become a part of the entire freshman year, not just an adjunct to freshman orientation. Such a program was recognized as a more universal need than any other single issue. An established, conversational, and generally informative relationship with a member of the faculty throughout the freshman year can contribute a useful base to the kind of freedom to involve oneself in the university during the ensuing three years, which many students want. Other pro-

grams for establishing closer relationships between students and faculty will be worked out; but we must begin at the beginning.

The college program itself must become both the subject and the source of invention, not to protect the student from the fancied predatory professionalism of the university, but to make that complex and varied universe a center of excitement and experiment. Continuous curriculum reform can be achieved only through the persistent inquiry of a group which represents the interests of all of the faculty and which has the support of a concerned and involved administration. The Council will, over the next year, propose methods for such reform.

The work of the Council this year has been largely one of investigation and the assemblage of materials out of which a continuing program of planning can be built. But it is the planning itself which creates the interest, more than the hope of once-and-for-all solutions. It is an education in itself to try to educate many students with many interests and many ambitions, each of which the university can fulfill but not in one uniformly imposed fashion. Students can involve themselves in a debate over the quality and the nature of the educational process; but the debate which resolves conflicts too effectively may conceal the variations of interest which make the university a particularly appropriate center of modern education.

Communication between students and faculty on matters not directly related to classroom problems is not easily achieved in the best of environments and at times for the best of reasons. For the student, college is a four-year experience which stands at the threshold of other phases of life. To the faculty, college is a profession of that experience in lifetime repetition, but subjected now to the intellectual pressures of rapidly changing fields. Much of any introduction to any field is destined to become obsolete, and sooner always than one anticipates. Virtually every conclusion will become an introduction if it remains valid and under the press of the search for new conclusions. The difference in point of view between student and faculty strains communication which is not intended to be specifically educational. Conversation can degenerate easily into complaints so specific (grades, examination schedules, the student's opinion of a particular instructor) that correction where possible becomes deceptively simple, or complaints so general (apathy, alienation, the intellectual quality of one's contemporaries) that correction seems beyond the scope, training, and capacity of most members of the faculty. Hearing the complaints, regardless of their specificity, may be useful to the faculty members who seek to influence university policy; but many interested students resent being used simply as sources of complaint without having access to the formulation of policy. Gripe sessions are a questionable purgative in the complex echelons of paternalism which make up much of the pattern of faculty and administrative relationship in all modern universities.

It seems unlikely that anyone will come upon a program of undergraduate education which will outlast the generation which first gives it its experimental efforts. Try as we may, we are not going to solve our problems even for a time. From many points of view it seems appropriate that we accustom ourselves to the succession of experiments which seem appropriate to the problems which we see and which our students suggest, accepting the possibility that the liberal arts may be the best statement of our own commitment which we are able to make.

IT MAY BE DIFFICULT to dramatize the humility which such a commitment requires, to enrapture alumni or foundations with the belief that real utility may lie in a chaos of experiments no one of which shakes the earth and all of which can be counted upon to fail—if success be measured by continuity. Room must be made for interesting ideas which will appeal only for a time. Programs must be evolved which will dissolve when they no longer sustain the interest of those who formulated them. Students must learn to construct the facilities of the university environment in shapes which provide them with what they want to know when they want to know it. And this freedom must take place within the restrictions of requirements which express frankly the reality of college as a transition to more specialized training.

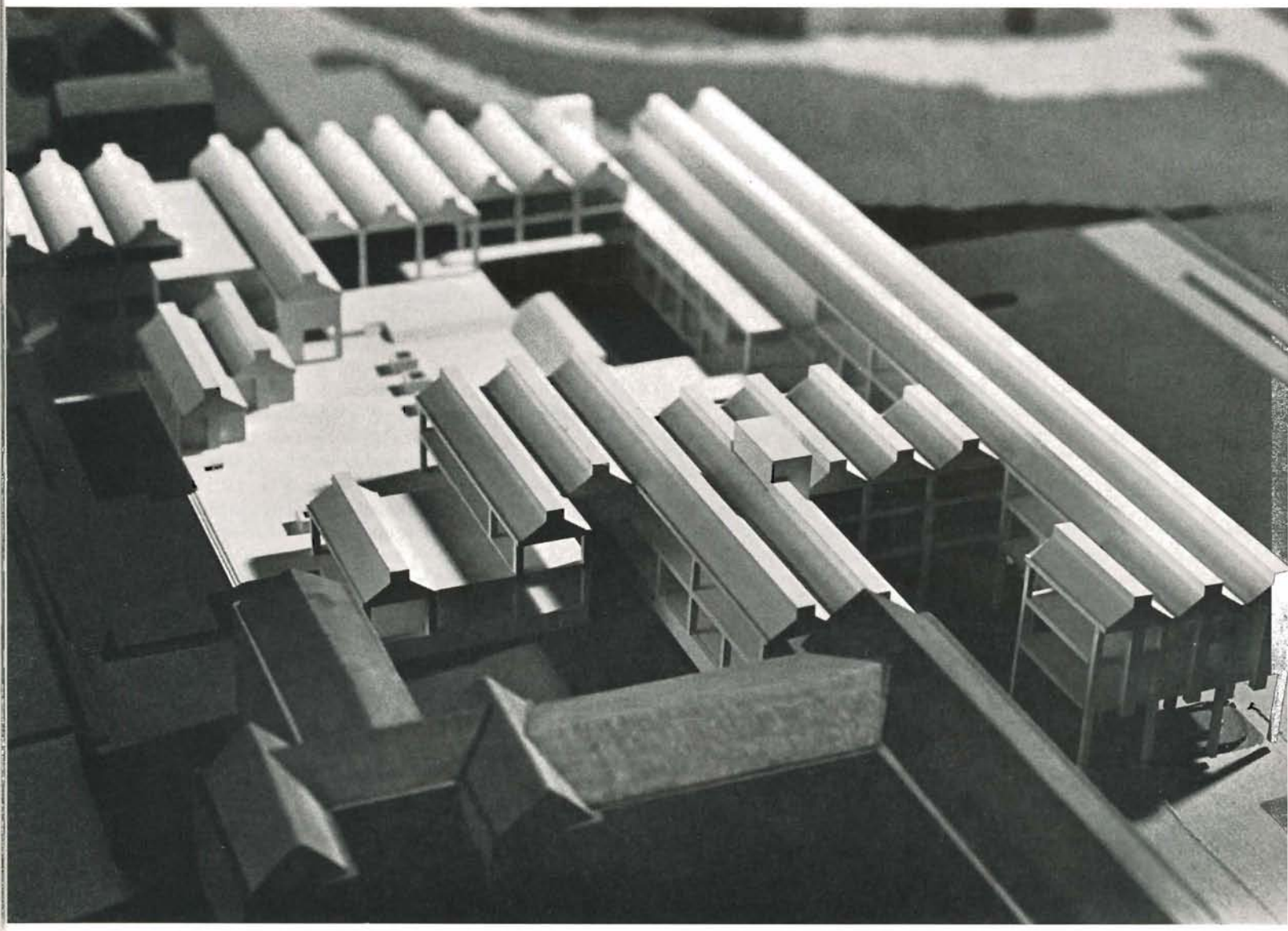
We can provide advising programs which introduce students and faculty to one another at a level relaxed enough to facilitate personal communication and informed enough to make possible the development of realistic academic and professional choices. But we cannot in this professional era create a camaraderie which emulates an indulgent Socrates or a homey sage at the end of a log.

We can relieve the pressures of grades and break the rhythms of clustered examinations. But we cannot make education painless or conceal the tensions of professional life which reflect the realities of our own careers.

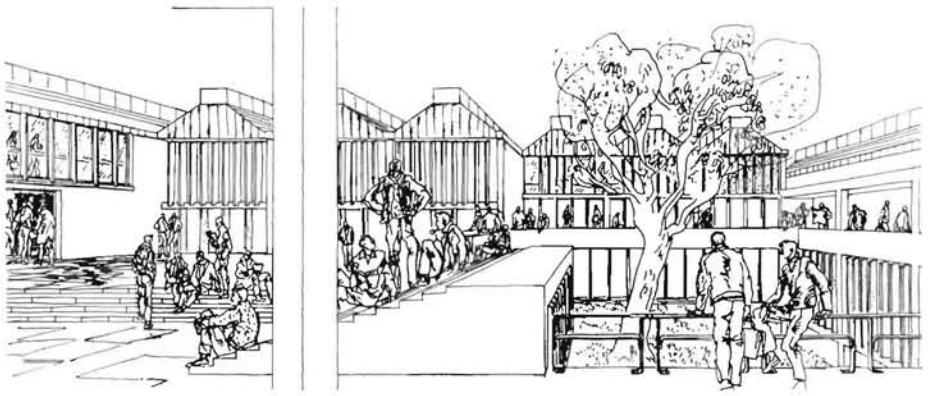
We can make sure that the university community provides the facilities for intellectual experiment both in and out of the classroom, responding to our own imaginations and listening to the needs of our students. But we cannot ignore the fundamentals of introductory training which prepare the student for the effective pursuit of his chosen career through the now-established academic channels.

Most important of all, the common enterprise of self-examination must be built into the lives of student and faculty alike. College planning must become a continuing function of liberal arts education. As a method of transition it provides at least a basis for determining some sense of a relation between past and present. It may well be the only future we have.

The three-man jury was isolated during its deliberations except for the presence of Robert Vickery (second from left), director of campus planning and professional adviser for the competition. Judges were Chancellor Thomas H. Eliot (left) and architects Harry Weese (right) and G. Holmes Perkins.



A model of the winning design shows that rooftops for both buildings bear a strong linear direction on an east-west axis, which is characteristic of the existing campus. The flat roof of the law library functions as the hub of the complex.



TRIAL BY JURY

BEFORE THE YEAR is out Washington University expects to break ground for a $3.5 million building complex on the north side of the main campus. Occupying the site will be a new School of Law building and a Social Science Center, both designed by the architectural team of Dolf Schnebli, George Anselevicius, and Roger Montgomery.

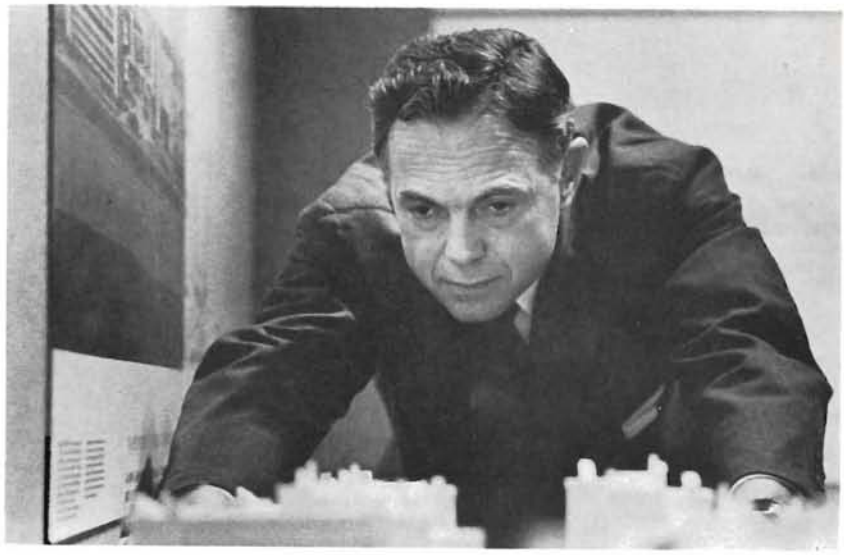
The three-man team won the commission for the buildings in a national architectural competition announced by the University last July. Rival schemes had been submitted by 115 architects when the first-stage jury convened in November for the purpose of narrowing the field to four finalists, each of whom was given $6,000 to complete a final presentation. Judges for the competition were Chancellor Thomas H. Eliot, Chicago architect Harry Weese, and Dean G. Holmes Perkins of the University of Pennsylvania Graduate School of Fine Arts.

The first-stage jury held its deliberations behind closed doors in the basement gallery of Steinberg Hall. Instead of the customary collection of paintings and sculpture, the gallery held hundreds of different sketches and design plans for the proposed buildings. The jury's task was to select four architects whose preliminary drawings demonstrated their ability to tackle the final stage of the competition, to carry their ideas to completion, and to develop a design which would function in harmony with the existing campus. To insure objectivity, the names of the entrants were unknown to the jurors, and all schemes were referred to by number.

"The walls are so high that you are unaware of the spaces," Perkins observed of one proposal. Another was discounted for failing to integrate faculty and students, and still another was reluctantly dismissed for being "out of harmony with the rest of the campus, though otherwise strong." The jury circled the gallery discussing the merits and failures of each proposal until, one by one, all but four schemes had been eliminated. The finalists were Schnebli, Anselevicius, and Montgomery; Kenneth E. Wischmeyer and partners of St. Louis; Hanford Yang and Associates of New York City; and Harry W. Saunders and Associates of Los Angeles.

ON FEBRUARY 27, the jury met again to judge the four anonymously marked schemes of the finalists. After considerable discussion and cross comparison, the jury voted unanimously in favor of Schnebli, Anselevicius, and Montgomery. As if to sum up the consensus of the jury, one of the judges remarked: "When everything is considered, this is where I'd rather go to school. It is the one scheme which has the modesty of total scale which the site demands and the program asks for."

Two members of the winning team, Anselevicius and Montgomery, are faculty members of Washington University's School of Architecture. The third, Dolf Schnebli, who heads a well-known architectural firm in Agno, Switzerland, has served as a visiting professor at Washington University twice in the past three years.



Chicagoan Harry Weese stressed the jury's obligation to bypass any scheme which tended to jar with the architectural integrity of the campus.

One of the models submitted by the finalists attracts close scrutiny from Chancellor Eliot during the jury's discussions.

Dean Perkins studies the details of one of the building plans entered in the contest. All entries received careful study and analysis.

Dolf Schnebli worked on the winning design with his teammates while running his own architectural firm in Agno, Switzerland.

George Anselevicius, a member of the winning team of architects, is chairman of the Professional Program in the University's School of Architecture.

Roger Montgomery, a faculty member at Washington University's School of Architecture since 1957, currently heads the School's Urban Renewal Design Center and the graduate program in urban design.

Professor Sam I. Weissman is recognized as one of the world's leading chemists by his colleagues and as an inspiring teacher by his students. A graduate of the University of Chicago, he joined the Washington University faculty in 1946. On Founders Day in February he received a faculty citation.

SAM WEISSMAN: A PROFILE

By ROGER SIGNOR
Office of Information

THIS ARTICLE IS THE sort of thing that Sam Weissman, Washington University's distinguished professor of chemistry, would describe as "hooplah" or worse. "Sam is an internationally respected scientist who would hate me for saying so," was how one of his former post-doctoral students put it. The student, Albert Moscowitz, now professor of chemistry at the University of Minnesota, continued:

"In an age where there is tremendous pressure to publish research results, he never does so until he is as sure as one can be of the positive merit and correctness of his work. He is a dedicated family man who takes pride in his wife's and children's accomplishments. Although eminent, he is extremely humble. He is to me what Fearless Fosdick is to Li'l Abner."

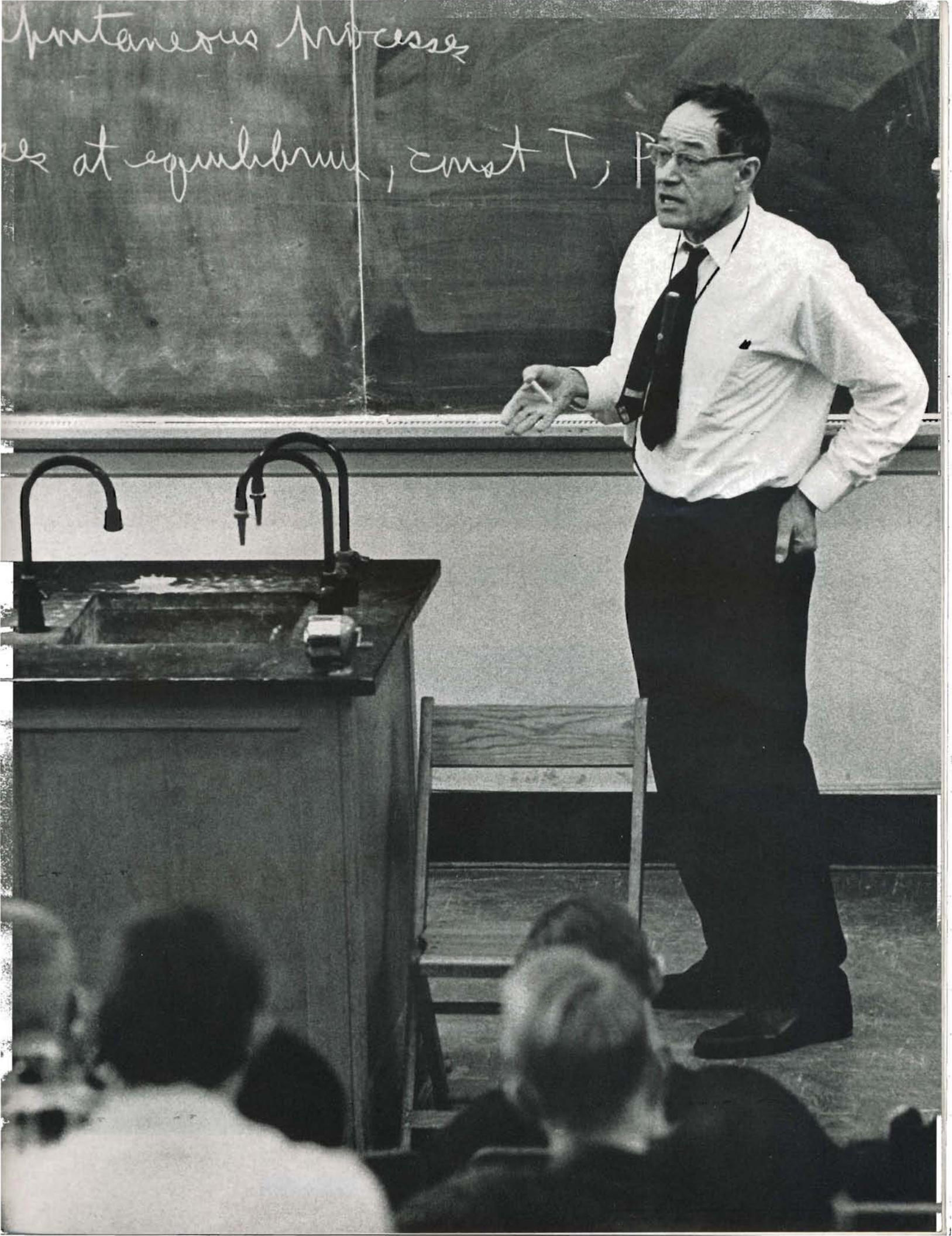
Well, aside from irritating Professor Weissman, an article about him could serve to deflate some myths about teaching and research in today's universities. It also would let a few people outside the field of chemistry know something of Dr. Weissman's outstanding contributions to science.

Perhaps one of the best ways to introduce Professor Weissman to those who have never met him is by way of relating an incident which took place one evening last March. Dr. Weissman gave a special lecture on the campus and a scientist who knows him quite well attended and reported the following:

"Sam demonstrated a very complex instrument which was furnished by an electronics firm. There were about 200 people in the audience. Many of them had no idea of Sam's eminence as a scientist. He did pioneering work in the field of chemistry he was discussing, but no one in the audience got an inkling of this fact from what he said. At one point, Sam fiddled around with the dials on this expensive instrument, then he turned around and said, 'I'll bet the company's men are wondering right now if I'm lousing up their equipment.' Two young men sitting in front of me were taken back at this, and one turned to the other and said, 'Do you suppose he's on the staff here?' "

For the record, Professor Weissman has been on the Chemistry Department staff since 1946. He has contributed to fundamental advances in chemistry both in the laboratories and in a small office in the basement of Louderman Hall. His office, like Sam himself, is singularly unpretentious. There is one three-shelf bookcase loaded with piles of precariously balanced journals and textbooks; a long counter, crammed with bottles and grubby odds-and-ends which surround a dusty box of detergent by a sink; an old canvas lounging chair which takes up the center of the office; and in the corner, a small littered desk by which hang a blackboard and two worn pieces of graph paper. Several sharp narrow lines hurry across the graphs, which are from experiments that recorded the magnetic effects of electrons. Electrons are infinitesimal bits of matter which, traveling in huge (on the atomic scale) orbits at tremendous speed around an atom's nucleus, determine the structure of molecules and the nature of all chemical reactions. They spin as they orbit the nucleus and therefore produce minute magnetic fields.

Professor Weissman lectures on elementary chemistry to freshmen and upperclassmen.


Spontaneous Processes
es at equilibrium, const T;

In his Louderman Hall laboratory, Dr. Weissman checks an experiment with an electron spin resonance spectrometer. He pioneered in applying ESR techniques to the field of physical chemistry.

Dr. Weissman thinks things over in his office, the setting for informal but invaluable education over the past twenty years.

In 1945, Russian physicists reported experiments in which they measured the magnetism of electrons. Such measurements are possible in roughly the following way. Most often electrons in molecules travel in pairs and thus cancel out each other's magnetic fields; but special kinds of reactive molecules called "free radicals" have an unpaired electron whose magnetism is uncancelled. By inducing an oscillating magnetic field through the molecule, this odd electron is tipped over when the oscillating frequency nears its own spin frequency. This phenomenon is called magnetic resonance. Energy is absorbed by the molecule when this happens and the drop in energy is recorded by an instrument called a magnetic resonance spectrometer. Many vertical lines are recorded in a more complicated molecule as the electron also interacts with magnetic fields of nuclei throughout the molecule. Knowing the general arrangement of atoms in the molecule, a study of these reactions permits mapping of electron density and electron transfer within the molecule. As Dr. Weissman put it, being able to follow the electron in this way "gives you a real handle in solving chemical problems," ranging from combustion to metabolic processes in living organisms.

Dr. George Pake, provost of Washington University, was one of the first American physicists to work on nuclear magnetic resonance. After getting his Ph.D. in this field under Nobel Laureate Edward Purcell of Harvard, he joined Washington University in 1948 as an assistant professor and brought the technique to this campus. It might have stayed in the physics laboratories had it not been for Professor Weissman's imagination and broad interests. "Sam was in the habit of coming over to the physics building to visit Henry Primakoff," Dr. Pake recalled. (Dr. Primakoff, now of the University of Pennsylvania, is an outstanding theoretician. It is a great credit to Professor Weissman that he is able to exchange ideas with theoretical physicists on a very advanced level.) "After Sam would see Henry, he'd often drop into my office to talk about magnetic resonance." Professor Weissman proposed that the physicists adapt their nuclear magnetic resonance equipment so that it could detect molecules with extra electrons, or free radicals. The Office of Naval Research, which also was interested in magnetic properties of organic molecules, offered to help support such a physics-chemistry project on the campus, and the research was begun. The physicists, notably Dr. Jonathan Townsend, built special electron magnetic resonance machines for Dr. Weissman, and with these he developed methods of investigating organic free radical molecules which yielded basic information about the molecules.

"Sam was the first scientist to get detailed spectra, or 'hyperfine structure,'" Dr. Pake continued. "To indicate the significance of what this meant to science, I'll draw a parallel with some pioneering physics research. In physics, one of the greatest single steps ever made—one on which we've based so much since it happened—was the precise understanding of how electrons behave in the simplest and most fundamental atom, the hydrogen atom. Similarly, in chemistry, the greatest concern would be getting more precise information on the arrangement of atoms in molecules, and to do this one has to know how the electrons have arranged themselves throughout the molecule.

"So what does this mean for the chemist? The implication is not just for free radicals, which are a special class of reactive molecules, but for all molecules. Sam's studies of free radicals offered a way for other chemists to study other molecules." Aside from the obvious value of simply knowing more about the basic steps of chemical behavior, the techniques pioneered by Professor Weissman are now routine in the chemical industry as an analytical tool in identifying certain molecular species. Electron magnetic resonance is one of the tools, together with nuclear magnetic resonance, which has contributed to the so-called instrumentation revolution in chemical research and in the chemical industry, Dr. Pake pointed out.

TALK OF RESEARCH ACHIEVEMENTS by themselves, however, overlooks one very sound basis for research in a university: the education of students, both graduate and undergraduate. And Dr. Weissman has always come on in high gear in this area too, in an age when students are supposed to be the orphans of research. The following comment on Dr. Weissman as a teacher was made by Dr. Alfred Holtzer, professor of chemistry at Washington University, who studied under Dr. Weissman as an undergraduate.

Dr. Holtzer wrote: "He has no right to be a good teacher. His lectures are disorganized, his derivations sketchy. He mumbles. He paces annoyingly. He has no conception of how to use board space efficiently, and he erases as fast as he writes. Terrible. With such technique each class should be a disaster. Somehow, it isn't. Instead, it is an incredibly rich and rewarding experience. Through some inexplicable magic of personal warmth and example, Sam's thoughts, concern, and involvement become your own and the reading and pondering you will have to do later, trying to figure out what the hell he was talking about, loom as so important and so vital that you can hardly wait to begin. As such, techniques and all, he is the envy of all teachers—a teacher unaware, whose every remark seems to deepen our understanding and quicken our interest.

"The profound effect of such a teacher is simply this: every subject he discusses seems to be only beginning. So he leads us to become scholars ourselves, to find the middle and perhaps the end, if there is one. If there is anything more than can be asked of a teacher I do not know what it is." Dr. Holtzer added that as a fellow researcher, "No matter what you do, you have always in the back of your mind that someday you may have to tell it to Sam, and that intellectually, he will be uncompromising. It is not just a case of his intellectual honesty, he also has the equipment to act on this honesty."

A number of Dr. Weissman's former students feel that informal groups bring out the best in him as a teacher. One of his graduate students, Dr. Walter Bruning, now assistant professor of chemistry at the University of Nebraska, wrote, "I think one of his greatest abilities is to communicate complex ideas to small groups of students. The daily informal discussions often taught us more than

any formal course work might ever teach. He always makes you feel at ease and you never feel that anything is too simple or too complex to bring up with him. His students are free to work on their own ideas in the lab, and a student can publish on his own. It is a common practice, as you know, for advisers to insist on their names appearing on any paper a student publishes. I went to Professor Weissman once with something I'd done and broached the subject of putting his name on the paper. 'No,' he said, 'this is your work and it should appear that way.' He teaches a student to use his own head, to work his problems out himself, and his great talent is that if you need help he'll give it to you lucidly and quickly."

Professor Weissman's ability to help others solve whatever problems they may bring to him is known also to industrial chemists. But a roving consultant he is not—he sticks to his students and the lab, and it would take something quite extraordinary to get him away. There is a story well known among University chemists and magnetic resonance researchers about a conversation Dr. Weissman is supposed to have had with an executive from an out-of-town company which tried to get him to serve as a consultant. Professor Weissman wasn't interested. But the executive persisted.

"This would take only two days of your time," the executive said.

"No," said Dr. Weissman.

"The fee we'd pay would be $2,000."

"No."

"You mean you wouldn't consider the job for $2,000?"

"Hell," Dr. Weissman replied, "I don't have any clothes to make me look like I'm worth a $1,000 a day. It's out of the question."

The story may be apocryphal, but Dr. Weissman's colleagues are certain it could happen in just that way. His intense preoccupation with his work has elicited one criticism, which is a compliment at the same time. One professor felt that by being more active in a political sense, Dr. Weissman would be a healthy and positive influence. "People would listen to him," the professor declared. Another colleague added dryly, "Yes, but if Sam went all over the place politicking, then he wouldn't be Sam anymore."

DR. WEISSMAN IS AN ORACLE among the chemists, though, and one of his staunchest admirers is Dr. David Lipkin, chairman of the chemistry department. They worked together at Los Alamos in the chemistry division of the atomic bomb project during World War II, and came to the campus together after the war.

"It's hard to do Sam justice as a scientist and a person," said Dr. Lipkin, "but I'd like to stress that he spends a fantastic amount of time with students outside of the lecture room. He taught freshman chemistry this semester and last, which isn't unusual on this campus for a senior professor, but students kept coming to see him after class."

"Also, he is one of those rare characters," Dr. Lipkin continued, "who still works in the laboratory with his own hands. This is very unusual for a man of his stature. When a professor doesn't work in the laboratory, there's a great deal of experimental lore that doesn't get transmitted to students."

With formal classes, discussion sessions, graduate students, plus reports to prepare for granting agencies, how does Professor Weissman find extra time for students and his own laboratory work? Another former student, C. Alden Mead, associate professor of chemistry at the University of Minnesota, provided the answer succinctly: "He has the ability to penetrate to the real essence of any problem and this is a major factor in his outstanding success as a scientist." Because of this ability, Dr. Weissman avoids spending excessive time going up blind alleys—a not infrequent route in exploring the unknowns of basic science.

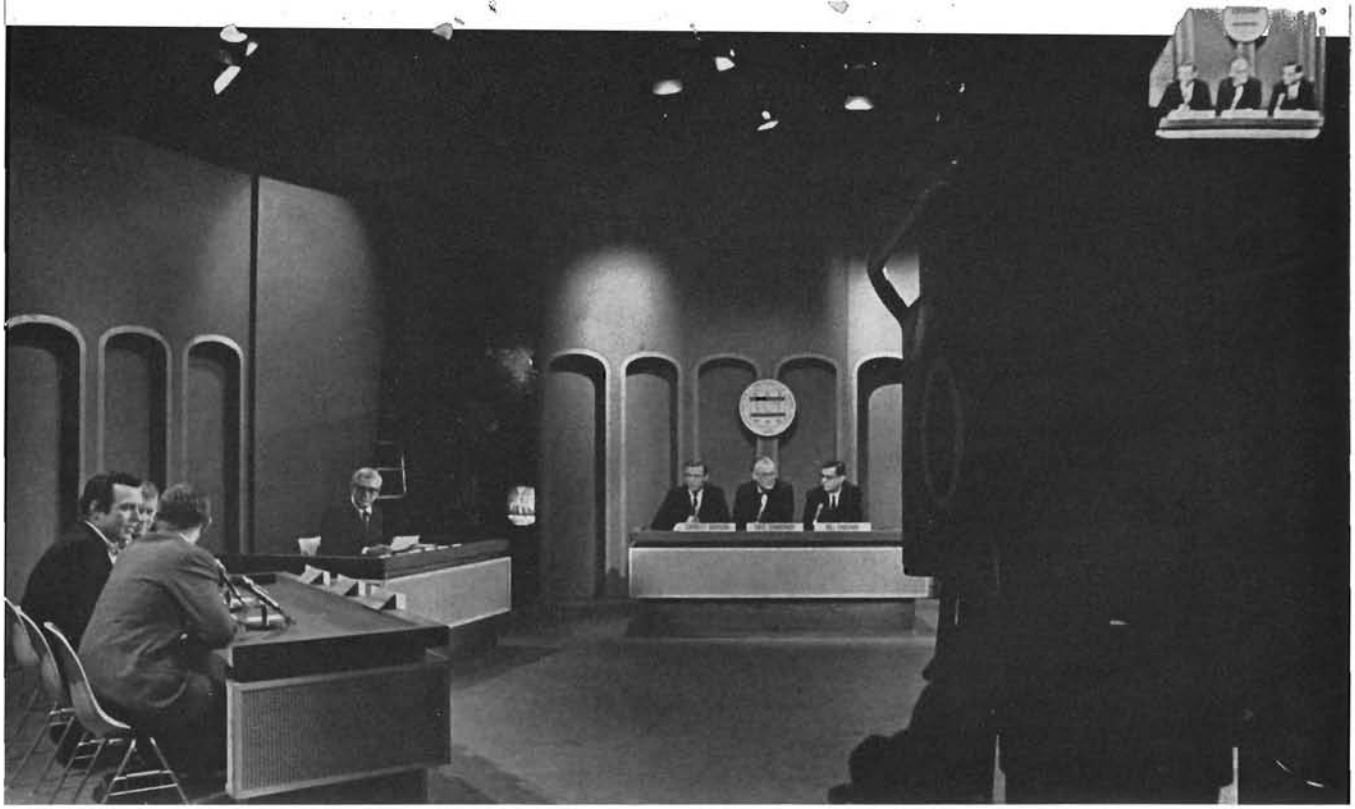
Trial and error is of course an important part of a student's laboratory work. But Dr. Weissman doesn't like to see students spend time unnecessarily going up blind alleys either. Dr. Mead recalled the following incident.

"In the fall of 1954, when I entered graduate school at Washington University, it was the custom to assign new students to temporary advisers, and I drew Sam. One of my first encounters with him was when I was trying to get exempted from a required course in organic qualitative analysis, on the grounds that I had had a short course in this at college. Sam asked me whether I had tried all the standard tests for the various chemical groups in this course, and I replied that I had. He then asked me whether I had been able to get them to work, and I had to admit that in most cases the answer was no. 'Well,' he said, 'the main purpose of this course is to teach you that these tests don't really work, so I guess you don't have to take it.' So I got out of what promised to be a perfectly dismal course for me."

Coupled with his skepticism, Professor Weissman, who is 54, has a youthful enthusiasm that is readily communicated even to the casual visitor to his laboratory. One time I was in his office trying to get him to talk about himself and, as usual, he talked about everyone else. He described in detail how some of his graduate students had done particularly brilliant work, and commented, "If it weren't for graduate students there wouldn't *be* any research."

Then he referred to a project which he had abandoned after he had teamed up with Dr. Pake and the physicists on magnetic resonance back in the early 1950's. "We never did get around to doing anything on this problem until the last couple of years," he said. The project has to do with the long-lived emission of light by organic compounds. The luminescent state in these compounds is very important in many photochemical reactions. "Have you ever seen one of these things?" he asked. He loped down the hall in his characteristic double-time stride and got two vials from a student. He placed the vials of compounds, called "corenene gold" and "triphenylene blue," up to a special light source. When he withdrew them from the light they continued to glow brilliantly.

"It looks like only a pretty plaything, but there are a helluva lot of important chemical reactions going on," he said in the tone of a man who feels there's much to learn.



ALUMNI FUN

For the first time in its 113-year history, a Washington University team has won a national title. On May 1, a three-man Bear squad came from behind in the closing seconds of the championship match to cinch the title of "1966 Alumni Fun Champions."

Competing in the Columbia Broadcasting System's television quiz show, the Washington University alumni trio chalked up an undefeated season of four straight wins, defeating the University of Maryland, Amherst, Oberlin, and New York University.

The Washington University team consisted of Bill Vaughan, BSJ 36, widely read humorist and syndicated columnist of the Kansas City *Star;* Dave Garroway, AB 35, noted television personality; and Charley Johnson, MSChE 63, star quarterback for the St. Louis Cardinals.

By defeating all opponents, the alumni team won $15,000 for the University's alumni fund from the sponsor of the program, the American Cyanamid Company. Under the terms of the Ford Foundation's challenge grant, the $15,000 award earned another $5,000 for the University.

"Alumni Fun" has been on national television for two seasons. Broadcast on Sunday afternoons, it was watched by an average of 7,000,000 persons each week. With Peter Lind Hayes asking the questions, the program matched teams of alumni from colleges and universities throughout the country. Questions covered six fields: literature, history, sports, people, places, and the arts. By a process of elimination, a field of some 15 colleges and universities was narrowed down to the two undefeated teams which met in the championship game.

Washington University's team opened play on February 20 against the University of Maryland. Competing against a team composed of Senator Joseph Tydings, television star Pernell Roberts, and Western Union President Russell McFall, the WU trio broke a last-minute tie to win by a score of 900 to 700.

On March 20, the Vaughan-Garroway-Johnson combination again broke a tie in the last period to defeat Amherst's team: actor Burgess Meredith, UN official Francis Plimpton, and Washington *Post* editor Alfred Friendly.

In the semi-finals on April 17, the Washington University team overcame a 200-point deficit in the closing minutes to defeat an Oberlin team made up of Bruce Catton, novelist and historian; Dr. John Broun, Jr., vice president of Colgate-Palmolive Company; and Wallace Sprague, president of Bowater Paper Company.

In the title match, the WU panel was up against a brilliant NYU squad. The NYU lineup consisted of Senator Jacob Javits, news commentator Larry LeSueur, and New York *Times* sports editor Jim Roach. Washington University went through the first period without a miss to mark up a score of 400 to 200. In the second period, NYU broke loose to tie the score at 600-600. In the rapid-fire "sudden death" last period, the Washington University team put on a last-second spurt to win the championship, 1100 to 1050.

All in all, "Alumni Fun" was fun for the team, the audience, and the alumni fund.

Runnerup to the Washington University champions was this New York University team: From left: Jim Roach, sports editor of the New York *Times;* Senator Jacob Javits, and Larry LeSueur, television and radio newscaster.

Host and inquisitor on the Columbia Broadcasting System's "Alumni Fun" program was Peter Lind Hayes, popular radio and television personality.

To the victors belong the smiles! The Washington University team of Johnson, Garroway, and Vaughan have just heard the announcement that they have nosed out NYU to win the 1966 title as champions of "Alumni Fun."

On his usual television appearances St. Louis Cardinal Quarterback Charley Johnson wears a faceguard. For "Alumni Fun" he gets a powder puff instead during makeup in the dressing room before the championship game.

In the following article, a professor of medicine at Washington University's School of Medicine discusses frankly the problem of continuing education for physicians. The author, a 1948 graduate of the Medical School, joined the faculty in 1963, returning to St. Louis from the University of Utah School of Medicine, where he was elected best teacher of the year four times in five years. A past vice president of the Washington University Medical Society, he is chief of the University's Medical Service at City Hospital.

By GERALD T. PERKOFF, M.D.
Professor of Medicine

KEEPING UP / A PROBLEM FOR TODAY'S DOCTORS

WE PHYSICIANS WHO ARE privileged to be in academic life find ourselves in a favored time, a time of rapid scientific and medical advance, a time when vigorous research makes stimulating the atmosphere in which we work. But it also is a time of critical self-examination, for despite the apparent general good health of our professional system, certain trouble spots appear.

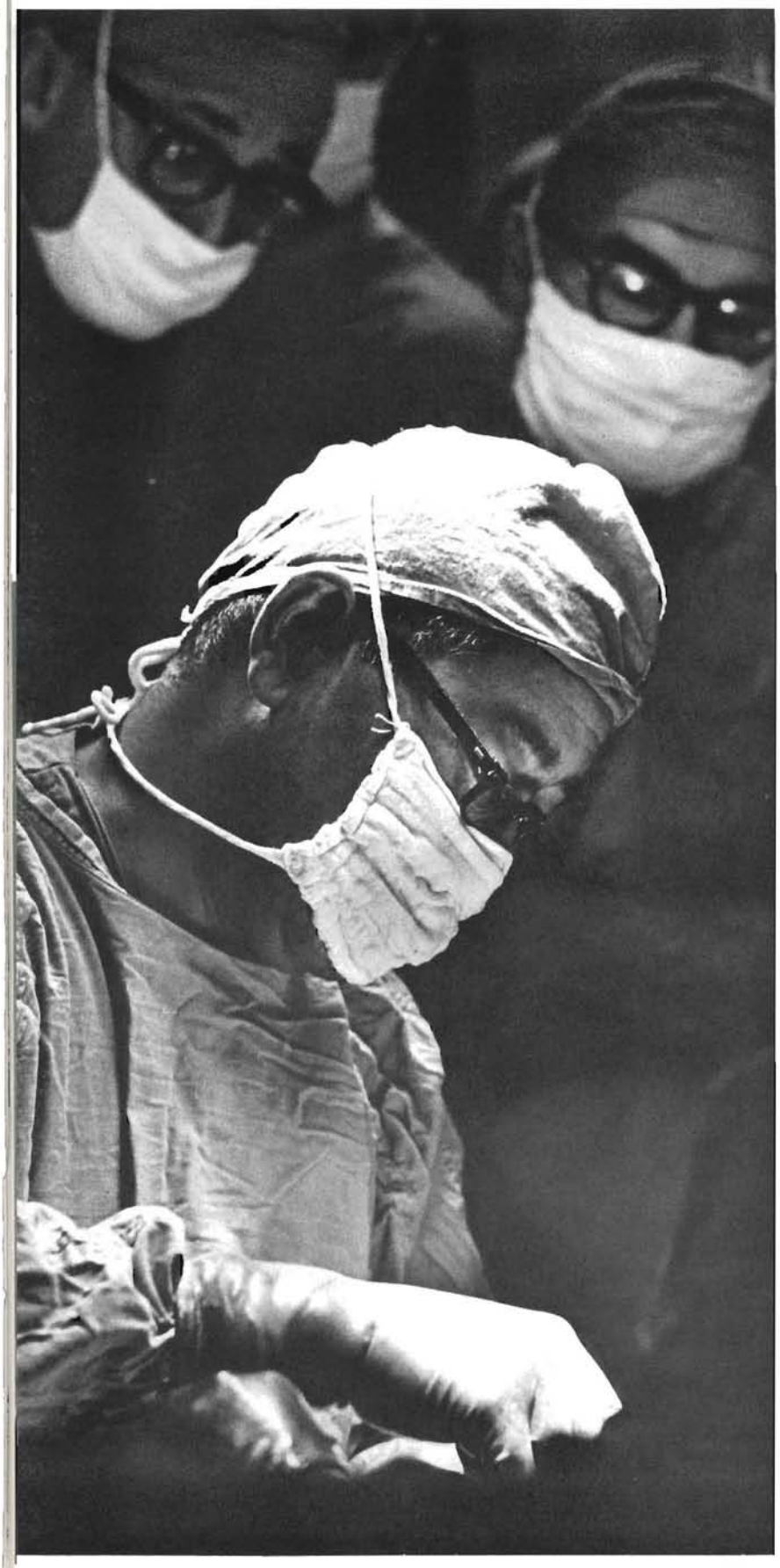
Among these is a recurrent problem to which insufficient attention has been given—the problem of continuing education for physicians. For the same scientific and medical advances that make our time exciting also have made the physician's job of "keeping up" more difficult than ever before. Even specialists responsible for teaching and investigation experience a feeling of despair as they try to stay current in their own fields, much less in any other. With this the case, it is no wonder that many practicing physicians find the task inordinately difficult.

Much effort already has been expended in attempts to solve the problem. Classical forms of teaching are used widely.

In addition to the intensive effort medical faculties devote to the immediate postgraduate years of internship, residency, and fellowship training, over 1,200 postgraduate courses are given annually throughout the country. For various reasons, however, only a small portion of the country's doctors can or do attend. The course may be given at a distance from the physician's home, it usually requires several days of his valuable time, and the quality of instruction varies. Even in cities where one or more large university medical centers exist, a relatively small proportion of the local practitioners regularly attend various teaching sessions. Some hospitals have begun refresher training programs in which the practitioner participates in day-to-day hospital work for a period of time, directly under the tutelage of a teaching faculty. Such programs, while new, appear to be well received, and should be effective. How many physicians will be able to afford the time and money extended periods of training require, and how many places may be available for this kind of training is uncertain.

To augment standard teaching systems, new tools, particularly television, have been used. That closed circuit television could supplement medical teaching was easy to see; this technique is being used effectively within and between schools and hospitals and at various national meetings. But open circuit educational television also has been used successfully, particularly by scheduling medical programs during the "dark" hours, i.e., at a time when the station ordinarily is off the air. Live or taped programs, single clinics or lectures, as well as series dealing in a progressive way with one subject can be broadcast. More recently regular hospital conferences have been televised during "light" hours. In this situation, two-way FM radio or open telephone lines have provided a mechanism for questions, answers, and discussion.

Today, the best that is available in any city can be brought to those not actually in attendance. The technology for expansion of this approach as well as initial experience in its use is readily available and could be called upon by any university that wished to venture into this field. However, there already is duplication of cost and effort and the ultimate usefulness of unrelated endeavors of this sort may be quite limited. The suggestion has been made that medical television and manpower resources be pooled on a national level, that a university-without-walls be created to capture on film the talents of many fine teachers in a planned, coordinated, progressive curriculum. Programs could be available to physicians at the turn of a switch and in a place of their own choosing. Once set up, cost of operation of the system would be modest. Whether or not such a plan is to be carried out at all, and if so, whether it should be sponsored by the



federal government, a national medical organization, or a leading university are open questions.

If both universities and practicing physicians are prepared to devote the time and effort necessary to prepare and to use effectively some such broad program which takes advantage of the latest electronic and communications techniques, then the problem of continuing medical education may be on its way to solution. But such a conclusion is predicated on the assumption that the main reasons physicians do not utilize fully those educational opportunities already available to them are lack of time, long distances to postgraduate centers, and inefficiency of present communications procedures. If there is some other compelling reason in addition, then the problem may not be amenable to such a direct, if laborious, solution.

Medical school is a place where students learn to be physicians in an atmosphere of medical scholarship, and if medical scholarship includes both the acquisition *and* dissemination of knowledge, then it is hard to understand why the process of medical education so often appears to be self-limited. In some way, the negative response of a physician to continuing education must be predetermined in great measure during his medical school days. If this were not the case, why are so many students cynical about the "ivory tower" and after graduation so vocal a part of the "town" side of "town-gown" disputes? In many instances, instead of stimulating the student to be a lifelong learner, his teachers inadvertently turn him away from the medical school and from education.

A NUMBER OF FACTORS appear to be responsible for this unfortunate occurrence. Even though physicians do not often specifically indict their own medical schools and teachers, there is a steady undercurrent of feeling among practitioners that, as students, they were a disappointment to their teachers because of their primary interest in clinical practice. Present practitioners and students feel that their teachers often prefer to spend their time on matters other than teaching, and one may date the erosion of students' and practitioner's interest in continued learning to the time they first sensed that their preceptors did not share their own high esteem for medical practice.

One also hears much concerning the apparent lack of relationship between "medicine" and the content of courses in medical school. Even though modern course content is and should be a matter for experts in each field, it is a surprising fact that even today medical school courses may demand so much learning by rote memory that this inefficient learning process may take precedence

over the understanding of concepts. A true university atmosphere may be hard to discern in medical school; top college students often are discouraged and lose academic standing abruptly during the first two medical school years. Though any medical faculty may prefer to pass off complaints about these problems as the grumblings of immature youngsters, this is unrealistic. Medical students are highly selected, intelligent, independent young men and women. And while they come to medical school with varying motives, they come with a single aim—to become physicians. In this context it is difficult to consider sudden drops in standing of highly ranked college students solely as evidence of increased academic competition and content, nor is it reasonable to attribute student criticism of teaching and teachers to the time-honored pastime of "griping."

These events may well mean that medical teachers fail to indicate to the student the place of their own particular tree in the medical forest. If those who teach believe it is important for physicians to know the things they teach, then the student deserves the effort of explanation of relevance of material to his future career. Whatever material a department or faculty member decides should be taught, it will be of little consequence now or later if it is presented in a way that appears to be completely separate from the students' goals. If the material can be related to their goals, they may be more likely to listen to what the teacher believes is important. If not, then the most modern, up-to-date material may not only fail to get across but, presented out of medical context, may have a negative effect. Such factors must play a role in the later unwillingness of many physicians to partake of available postgraduate teaching. To have effective *continuing* education the student must be captured while he is in medical school. Those who are turned away at the start become even less receptive to postgraduate medical education than they were to the formal medical curriculum.

If the thesis is correct that the problems with postgraduate medical education begin in medical school, then today's medical schools may be running the risk of wasting part of the job of medical student training they have done so well, and without knowing it may fall short of the goal of excellence they have set for themselves.

To correct this situation, more must be offered than postgraduate courses, seminars, conferences, and increased utilization of modern electronic techniques. To utilize properly and fully what is now available and what can be made available in the future requires at least a partial reorientation of medical schools as well.

"In some way, the negative response of a physician to continuing education must be predetermined during his medical school days."

CERTAIN PRINCIPLES CAN be set down for such reorientation. First, teaching of and relationships with students must be conducted in such a way as to convey to students the importance of what *they* are doing. Medical teachers should subscribe to the thesis that it is important to be a medical student, that the goals medical students have are worth having, and that what they are taught is of value to one with those goals. Second, medical school faculty members should prove by attitude and action that all aspects of medical and scientific activity related to medicine are important and deserve respect, and that they are related one to another. Unless clinical and nonclinical scientists alike are uniformly interested in the student, whether or not his and their special interests coincide, the student, or later the physician, cannot be expected to be interested in medical faculties, or in what they have to say.

The planned regional centers for cancer, heart disease, and stroke may provide a direct stimulus for re-evaluation of current attitudes in this area, since the belief that universities are the proper and effective media for the implementation of a broad program of continuing medical education was explicit in the early descriptions of the centers' programs. Funds specifically designated for educational as opposed to research purposes may well become available under these programs, and to participate in the centers at all, universities will be required to acknowledge that they accept responsibility for the furthering of the educational competence of the practicing physician. That they have such responsibility seems clear. When a medical student graduates, only certain basic minimum achievements are guaranteed. Unstated but implied is the idea that he is prepared to amplify those achievements through continued learning. In the long view, it may well be that changes in the attitudes of those responsible for the preparation of lifelong students may constitute the most effective initial step in the preparation for expanded programs of continuing medical education which are likely to come into existence in the future.

Dr. Francis O. Schmitt, alumnus and former Washington University faculty member, is chairman of an international "invisible college" whose members are engaged in . . .

BRAIN RESEARCH

About twenty-five years ago on the Washington University campus there was an unusual, informal group of scientists called the "Schmitty Verein." "Verein" is German for association and "Schmitty" stood for the group's founder, Dr. Francis O. Schmitt.

Schmitty Verein's membership was small, but it was unusual in two respects: it involved scientists, from both the main campus and the medical school, representing a truly broad range of disciplines from physics to physiology; and the members included many of the University's most accomplished researchers.

Dr. Viktor Hamburger, chairman of the University's zoology department, was a member of the Schmitty Verein, which met once a month in Rebstock Hall. He recalled that the meetings were characterized by free-swinging discussions on a broad range of scientific problems. "It was something that was never achieved again after Dr. Schmitt left the University," Dr. Hamburger said.

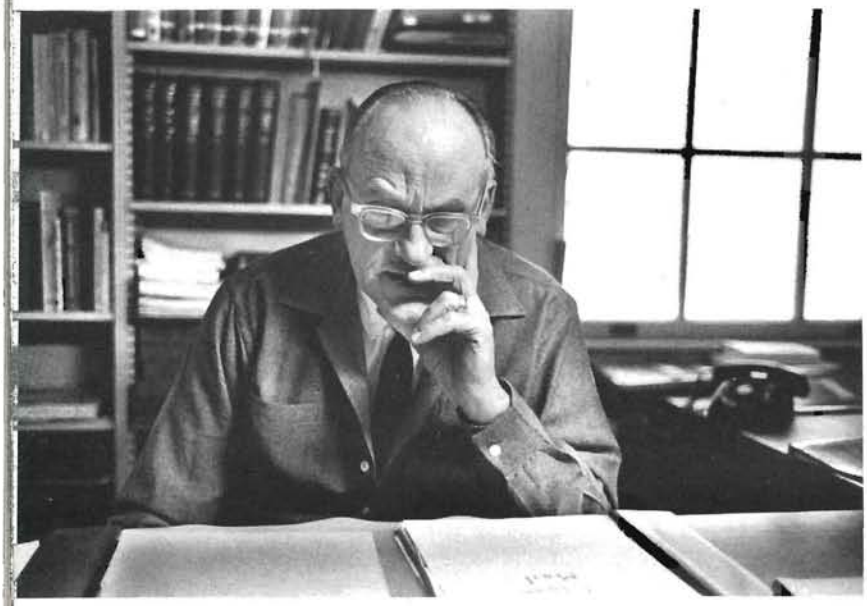
"Dr. Schmitt was a sparkplug for all sorts of things," he continued. "He was one of the first to use biophysical techniques to study the fine structure of nerve fibers, and some of his conclusions were verified after the advent of the electron microscope. When he was here he engaged in a kind of molecular biology which came into its own about ten or fifteen years later." In 1941, after serving on the faculty for twelve years, Dr. Schmitt joined the Massachusetts Institute of Technology to head its biology department, which was being reorganized and broadened to utilize basic knowledge in physics and chemistry as well as in the fields of engineering.

Naturally, Dr. Schmitt was greatly excited over the promise molecular biology held as one key to understanding the enormously complex physical workings of the brain, problems such as how brain cells "encode, store, and read-out" information. But his enthusiasm over molecular biology has never prevented him from taking a long view of all the fields devoted to the study of the brain. (These fields are commonly referred to as the neurosciences.) For many years Dr. Schmitt has been convinced that man's eventual understanding of the mechanisms of the brain will come only as a result of the integration and coordination of research at many levels: behavioral, the brain as an organ, interconnections of neurons, cellular, subcellular, molecular, and submolecular. The immense complexity in attempting to define thought processes scientifically is merely suggested in the following figures: There are an estimated ten billion nerve cells, or neurons, in the brain and 100 billion glial cells which make up supportive tissue surrounding the neurons and blood vessels; neurons may receive thousands of fiber connections from other neurons, and it is estimated that only a small percentage of the connections has been traced.

In the past few years, Dr. Schmitt's talent for bringing the best of many fields together has resulted in a unique world-wide organization which is a major coordinating force amid a current intensification of brain research. Recent advances in biochemical techniques have helped to touch off the surge of interest in the neurosciences. Several brilliant researchers have left other fields to do brain research, which is rapidly becoming one of the hottest fields of science.

"But in the early 1960's I found that there was no dialogue between the behavioral and molecular researchers, and very little dialogue between the physiologists and the

Dr. Schmitt discusses research problem with Mrs. Elizabeth Myers, technical assistant in his laboratories at MIT.



Professor Schmitt in his office of the Neurosciences Research Program, Brookline, Mass. Thirty-two international authorities on brain research and basic sciences are associates in the program. Dr. Schmitt received his A.B. and Ph.D. degrees from Washington University, which awarded him an honorary Doctor of Science degree in 1952.

molecularists," Dr. Schmitt said. This didn't come as any particular surprise to him, since communication breakdowns between different lines of investigations in any field are frequently the rule rather than the exception. To complicate matters, there has been the so-called information explosion in science; in 1964, for example, 120,000 scientific journals were being published.

For Dr. Schmitt, brain research is too central a problem for all of science to ignore the lack of dialogue. He points out that the brain is the instrument which generates science and evaluates all discoveries, but despite the information explosion in the neurosciences our understanding of the mechanisms of the brain "is pathetically primitive." He compares the state of brain research to the state of physics in the nineteenth century before the advent of subatomic particle physics and the relativity and quantum theories, and asks whether the complexity inherent in the brain's mechanisms may demand revolutionary new concepts to understand them: "Is it possible," he wrote, "that, in addition to the electric action waves coursing through unfathomably complex neuronal nets, other altogether unknown processes may be occurring to produce a new and 'strange' system? Can the human mind develop concepts and tools capable of discovering the mechanisms of its own functioning? These questions are beginning to interest not only pioneering neuroscientists but theoretical physicists and chemists as well."

IN NUMEROUS DISCUSSIONS with neuroscientists, Dr. Schmitt found agreement on the need for better communication and coordination. On February 1, 1962, he called together twenty leading scientists from several fields and institutions throughout the world. He proposed that they form an "invisible college," which would be called the Neurosciences Research Program. Simply put, the scientists would channel their findings through a central organization which would synthesize and distribute information and ideas to a wide audience of researchers. The NRP would also serve as international headquarters for periodic work sessions. In addition to a small, full-time staff of scientists which would do research and various communications services, the program would have a group of technical writers who would publish summaries of the various work sessions and distribute other information. Dr. Schmitt's colleagues enthusiastically endorsed the idea. They agreed to become permanent associates in the program and named Dr. Schmitt chairman. (Dr. Schmitt also holds the position of Institute Professor at MIT.)

Under sponsorship of MIT, money for the program was raised from federal and private agencies, and offices and laboratories were set up in Brookline, Mass., on two floors

of a stately mansion which also is the home of the American Academy of Arts and Sciences. Today the program has thirty-two associates, all international authorities in various phases of brain research and basic sciences.

One excellent example of how laboratory investigations are accelerated through cooperation with the Neurosciences Research Program comes from the department of psychiatry at Washington University's School of Medicine.

Three years ago, Dr. Blake W. Moore, assistant professor of biochemistry in psychiatry, isolated a new protein from the brain. The protein is of special interest since it is one of a very few that have been found only in brain tissue. It is theorized that certain proteins in the brain cells may be involved in specific functions in the nervous system, such as the memory processes. In order to get information on the protein which he had discovered, Dr. Moore needed to utilize a technique from immunology, specifically, the preparation of antibodies to the protein. "Immunology was somewhat out of my line; but in addition to that, the protein had unusual properties, and this was enough to stump me in trying to produce an antibody," Dr. Moore said. A promising line of research, therefore, was temporarily stalled. Dr. Eli Robins, chairman of Washington University's psychiatry department, mentioned this impasse to Dr. Schmitt. In October of 1964, Dr. Schmitt arranged a meeting at the Neurosciences Research Program Center and invited Dr. Moore and Dr. Lawrence Levine of Brandeis University, one of the country's leading immunochemists whom he had briefed on the Washington University research problem. After Drs. Moore and Levine discussed the problem, Dr. Moore returned to St. Louis and sent Dr. Levine samples of the protein. About seven weeks later, Dr. Levine sent him back an antiserum that could be used in his experiments. "This really opened up a whole new line of research for me, and Dr. Levine and I have been cooperating ever since," Professor Moore said.

The story of this particular protein didn't end with the Moore-Levine collaboration. Samples of the protein and antiserum have been sent to researchers throughout the world. For example, the type of brain cell from which the protein was isolated is not known, so Dr. Schmitt sent the antiserum to another specialist and associate in the neuroscience program, Dr. Holger V. Hydén of the University of Göteborg, Sweden. Although the problem of the protein's origin is not definitely settled, last February Dr. Hydén reported evidence that the protein originated in glial cells. As in other related projects, the Neurosciences Research staff has coordinated developments concerning the protein, passing information on to Dr. Moore and other interested researchers throughout the world.

Dr. Moore subsequently attended several informal meetings of specialists at Brookline, meetings which Dr. Schmitt calls work sessions. "These meetings, which are very carefully planned, have real value," Dr. Moore said. "Dr. Schmitt brings together a group of fifteen to twenty leading investigators in a given area. Informal papers are given, but there is quite a bit of uninhibited speculation which by itself is a rich source of ideas. People who have had training in science and are good writers attend all the meetings, tape them, and take notes." They summarize the meetings, then send proofs to the participants for corrections. "I received the final published summary of the meeting I attended and the writers did a good job," Dr. Moore added. Summaries of all the meetings are published in the *Neurosciences Research Program Bulletin* and are sent to numerous science libraries and individual researchers.

The work sessions also have served as preparation for a month-long study conference to be held in July at Boulder, Colo., which will be the first in a series of intensive summer meetings. Participants will include sixty-five of the world's leading neuroscientists, each of whom will give lectures. The meeting will also be attended by forty-three postdoctoral and eleven predoctoral students. Proceedings of the meeting will be published in a book which will encompass subjects from molecular to behavioral investigations. To the staff's knowledge, it will be the first volume to offer such a broad scope of coverage in the neurosciences.

THE ACTIVITIES DESCRIBED SO FAR touch briefly on the ambitious program being carried out by Dr. Schmitt and his associates. At sixty-two, Dr. Schmitt approaches the program with the same energy he displayed twenty-five years ago when he was sparkplugging the Schmitty Verein. For example: on Sunday, March 6, he underwent an appendectomy in New York City. He showed up for the opening lecture of a work session in Brookline the following Sunday evening and put in a fourteen-hour day Monday.

Underlying the accelerated tempo of Dr. Schmitt's group is a conviction that advances in the neurosciences will have the broadest implications.

Dr. Schmitt conveyed some of this conviction in an article published in *Science* last August: "Whether one likes it or not, man has embarked on the greatest of human experiments, probably far overshadowing in potentialities the explorations of outer space—namely that of determining whether by taking thought, man can discover the mechanism of thinking and whether, by so doing, he can achieve new orders of understanding not only of the universe about him but even of the dimensions of his own nature."

Comment / On Arch(a)eology, Alumni Fun, and Oedipus

THE TWO MAJOR ARTICLES with which this issue opens are both concerned with man's search for his past: one in the cradle of Western Civilization and the other in a little-known proto-civilization on our very own doorsteps. While one involves searching for the physical evidence and the historical basis for an enormous wealth of legend and myth and epic poetry, the other attempts to reconstruct a culture from virtually nothing but the physical remains.

In the article by Dr. Mylonas on "The Rise and Fall of the Mycenaean States," we have followed the classic usage in referring to the discipline involved as "archaeology." In the article on "The Mystery of Monks Mound," we have adopted the practice of the explorers of the New World's pre-history who call their field "archeology." Both articles provide evidence of the exciting and important work University scientists are doing in archaeology, or is it archeology?

IN CAPTURING THE 1966 ALUMNI FUN championship, Washington University's representatives—Dave Garroway, Charley Johnson, and Bill Vaughan—put in a real team effort. Pooling their knowledge, the trio managed to come up with the right answers just often enough to win. In all four contests, they went right down to the wire and then came through with a victory.

Dave Garroway contributed a great deal to the team, with his many and varied interests, and Charley Johnson was good for a few crucial last-second touchdown passes, but the real star of the series was Bill Vaughan. During regular play, the different members of the team each contributed something, but in the rapid-fire, last-minute sessions it was Bill Vaughan's quick responses that made the difference.

Vaughan himself is far too modest about his role in the team's great showing. Writing in his syndicated column midway in the season, Bill remarks:

"Frankly, I think the team is beginning to shake down into a point-scoring aggregation. Up until now, Dave, Charley, and I have been sitting back, assuming that one of the others might have some idea of the answer. Mainly, Garroway and I relied on Johnson on the theory that he was younger and therefore had to be smarter.

"Now we all three realize that nobody knows anything and we just blast away."

However, Vaughan does admit at one point that he had something to do with the team's showing:

"So far," he writes, "We have defeated Maryland and Amherst, both classy opponents, whom we bested in contests that could have gone either way. In one of these confrontations, in fact, the whole thing turned on the name of the character Humphrey Bogart played in 'The Maltese Falcon.' Standing deep in the shadow of my own goal posts, I came up with Sam Spade and was carried off the field in jubilation."

After this uncharacteristic burst of immodesty, Vaughan reverted to form and ended his column with the following bit of self-effacement:

"This program serves a great educational purpose. The money goes to the universities and the tapes should be shown to educators everywhere to demonstrate the sad state into which supposedly educated people sink a generation after they have been handed the sheepskin.

"I just hope that the youth of America never looks in on the show. Young people's regard for the wisdom of their elders is low enough as it is."

A NEW VERSION OF "OEDIPUS REX" was an ambitious project for a campus organization to undertake, and Thyrsus is to be congratulated not only for attempting it, but for carrying it off with a great deal of success. Herb Metz, the director, is quoted as saying, "It produced no wishy-washy audience reactions. It was either hated or adored."

The cast and crew were passionate in devotion to the play and its director and so was a large portion of the record-breaking audience. On the other hand, the play's critics were just as passionate in their denunciation of the production.

Professor Sale, who made the new translation, commented that previous translations seem to fall into two groups: "those in which the translator has been extremely accurate and his translation is either not very pretty or else not very playable, and those which are playable and attractive, but are terribly far away from the Greek text." Dr. Sale attempted to make his version *both* accurate and attractive. We think he succeeded in doing both.

—FO'B

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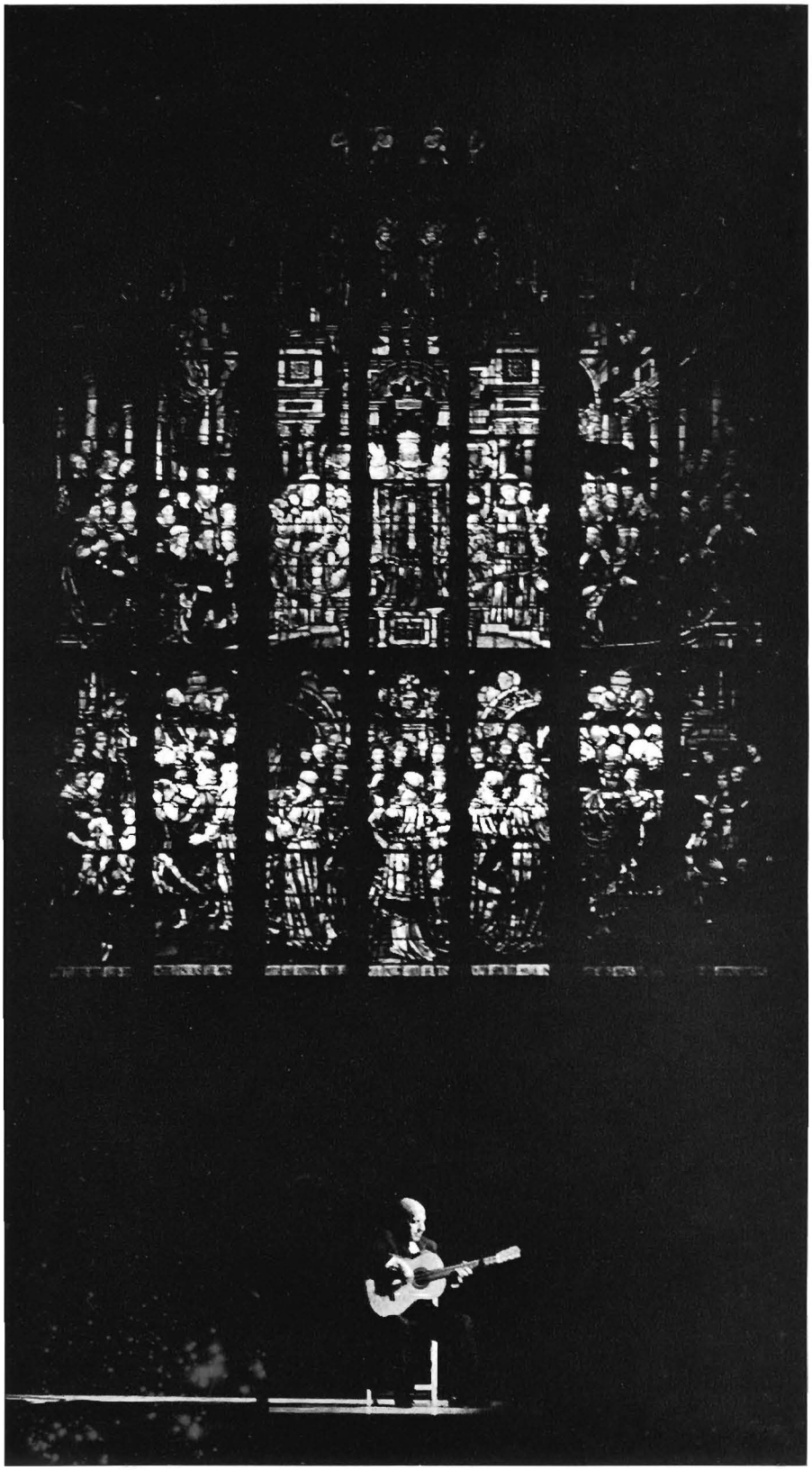

Flamenco is the child of the Spanish gypsy tradition and, so it is said, one must have at least some gypsy in his blood to play it. Carlos Montoya is a gypsy, and for him Flamenco "comes from the heart." On March 11, Montoya appeared in solo concert before a capacity crowd in Graham Chapel. Drawing upon a tremendous knowledge and remarkable musicianship, Montoya thrilled the audience with his exquisite improvisation and creativity, the essence of Flamenco music.

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